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Beyond the High Water Mark: Access and the Enaction of Blue Space Benefits on Hawai'i Island Shorelines

An Undergraduate Honors Thesis by

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CONTENTS

ABSTRACT	1
INTRODUCTION	2
Research Background and Main Questions	3
LITERATURE REVIEW.....	6
Socio-Ecological Characteristics of Contemporary Hawai'i Island Shorelines.....	6
Hawai'i Island Shorelines as Liminal Places.....	7
Defining Blue-Space Benefits	9
Defining Access	10
Demarcating Access Beginnings and Endings on Hawai'i Island Shorelines.....	12
HAWAI'I ISLAND CONTEXT.....	19
Traditional Hawaiian Place Relationships	19
Adaptation and Appropriation of Hawaiian Land	24
Contemporary Context.....	32
RESEARCHER POSITIONALITY AND SUBJECTIVITY.....	35
RESEARCH METHODS.....	38
Interview Methods.....	38
Interview Analysis Methods.....	42
Spatial Analysis Methods	44
RESULTS	46
1: Distribution of Access Based on Shoreline Access Point Locations and Demographic Data.....	47
2: Blue Space Benefits Derived from Hawai'i Island Shorelines	54
3: Processes Limiting Participant Abilities to Access Benefits.....	59
4: Maintaining Access to Shoreline Benefits	74
DISCUSSION	81
Intangible Blue-Space Benefits.....	81
The Importance of Caring for Shorelines	83
The Effects of a Postcolonial Political-Economy.....	84
Possibilities	86
Research Limitations and Recommendations	88
CONCLUSION	90
ACKNOWLEDGEMENTS.....	93
LITERATURE CITED	94
GLOSSARY OF HAWAIIAN TERMS*	98

ABSTRACT

Shorelines on Hawai‘i Island are blue spaces, or areas with naturally occurring bodies of water with health-enabling potential. Hawai‘i Island shorelines are physically and discursively shaped through ongoing, ever-changing unique natural and cultural processes. Benefits garnered from shoreline blue spaces vary from person-to-person. This thesis uses a mixed-methods approach to examine the socio-economic, legal, cultural and spatial dynamics that control access to different types of blue-space benefits derived by individuals from shorelines on Hawai‘i Island. All shorelines on Hawai‘i Island are designated as public property and coastal property owners must comply accordingly. However, day-to-day implementation of shoreline access laws is complicated by ongoing colonialism. I conducted qualitative analysis of data from 10 interviews with long-term Hawai‘i Island community members and carried out spatial analysis of how shoreline access right-of-way locations interact with demographic distribution on the island. I found that the implementation of public shoreline access laws does not ensure equitable shoreline access by failing to acknowledge either the variability of blue-space benefits derived from shorelines or the underlying processes that control abilities to access those benefits.

INTRODUCTION

I clutched my clipboard and stepped carefully around the sunscreen-streaked tourists lounging on warm lava rock. I was at Hōnaunau Bay, an area of shoreline known to have some of the best snorkeling that Hawai‘i Island has to offer. The Bay is part of a larger property designated as a national park, and is made up of a short stretch of hardened lava that juts into the ocean, rimmed with private properties and accessed via a short dirt road. I was there to collect anonymous surveys from beachgoers about their relationships to coral reef ecosystems with Alison, the PhD student whom I was assisting with summer research. Alison and I did this about once a week for two months, and the scene on this day was a typical one. Ahead of me, occupying the rocky black center of the beach, kids flung themselves into the water with whooping abandon while their parents looked on from plastic beach chairs. People struggled to pull themselves from the Bay and exclaimed over the sharpness of coral. Some wore waterproof cameras strapped to their foreheads or held in their hands, eager to document parrot fish and eels.

To my left, separate from the snorkel-masked tourists in a shallow, sandy corner of the bay, a group of local residents were preparing for evening canoe practice. They navigated the shoreline with practiced movements, hauling brightly painted outrigger canoes into the ocean. A few others stood with fishing poles near the boat launch, tossing their catch into five gallon buckets. Behind me, sitting in a lawn chair near the beach’s pavillion with his back to the frenzied activity taking place along the center of the shoreline, was an older Hawaiian man. I saw him there often. I had surveyed this man once, and although he had not shared much, he told me that he was born at Hōnaunau Bay and had lived there all his life. He remembered when the

shoreline at Hōnaunau was undeveloped—just lava rock, brush, and waves. Each time I saw this man he was doing the same thing: tapping a round shaker with one hand against the arm of his chair in staccato rhythm, as if keeping the time of the bay.

The dynamic interactions with the shoreline that I regularly witnessed at Hōnaunau Bay both intrigued and unsettled me. Whenever I was there, I felt great discomfort with my identity as a white student researcher from Vermont. I was stepping casually, like so many other visitors, into a richly storied place that had been home to Hawaiian families for many generations. My discomfort stemmed from my growing understanding that the historic and continued deployment of economic, political, and social power structures on Hawai‘i Island has favored access to shorelines for certain people, myself included, over others. Why were the activities of locals squeezed to the perimeters of the Bay while tourists freely took up the majority of space in the middle of the shoreline? Why it easier for individuals like me, a newly arrived summer visitor, to enact relationships with Hōnaunau Bay than it is for a lineal descendent to do so?

Underlying socio-economic and political processes mediate the ability of individuals to access a broad range of benefits derived from shorelines on Hawai‘i Island. These processes manifest themselves in daily lived experiences and in ways that are potentially overlooked by policy makers. The goal of this thesis is to identify the processes on Hawai‘i Island that are used to maintain and control access to shoreline benefits, and to examine the social divisions and conflicts that may arise as a result of these processes.

Research Background and Main Questions

This thesis is born from my experience working as an undergraduate research assistant to University of Vermont PhD student Alison Adams on Hawai‘i Island during June and July of

2018. While the eruption of Kilauea volcano filled the sky with thick black vog and created new land on the southeastern edge of the island, Alison and I conducted 24 semi-structured interviews, lasting one to four hours each, with Hawai‘i Island residents, and collected over 300 surveys from anonymous beach-goers.

Although asking about public shoreline access wasn’t part of our interview protocol design, the topic quickly emerged from interviews as a salient theme. Despite seemingly clear-cut legal policies that mandate that all shorelines on Hawai‘i Island are public property, our interviewees expressed varying degrees of (dis)satisfaction with their ability to benefit from shoreline resources in the ways they wished. Intrigued by the disparity between legal shoreline access structures and actual lived experiences of participants, the emergent theme of public shoreline access became the focus of my thesis research. With this work, I hope to honor the many people who were gracious enough to share their words, lived experiences and *mana‘o* (ideas, knowledge, opinions) with me.

Ribot & Peluso (2003) define access as “the ability to benefit from things – including material objects, persons, institutions, and symbols” (p. 153). As such, analyses of access should examine *who* benefits from things and the *processes* that allow them to do so. This can be done by identifying specific benefits, the ways in which various actors control, maintain and distribute access to them, and the underlying power structures that access relations are embedded within (ibid). I aim to evaluate coastal access dynamics in the context of Hawai‘i Island while considering the unique aspects of shorelines as places, using a mixed methods approach of qualitative and spatial analysis. I have grounded my research questions in Ribot & Peluso’s theory of access:

- 1) What kinds of benefits are derived from to shorelines by research participants on Hawai‘i Island?
- 2) What processes control the ability of participants to access benefits derived from Hawai‘i Island shorelines?
- 3) How do processes controlling access to shoreline benefits on Hawai‘i Island result in conflict?
- 4) How does demographic distribution on Hawai‘i Island interact with the locations of public shoreline access points to shape spatial realities of shoreline access?

LITERATURE REVIEW

Socio-Ecological Characteristics of Contemporary Hawai'i Island Shorelines

Shorelines around the world have become increasingly fraught social and natural environments because of pressures exerted by expanding coastal development, population growth, and climate change (Reineman 2016). On Hawai'i Island, beaches are composed mainly of eroded sediments from coral reefs and lava bedrock (Fletcher et al. 2012). Shorelines around Hawai'i Island are highly variable in nature, ranging from sharply rising black cliffs to secluded white sand beaches. They are affected by seasonal wave cycles that transport sediments alternatingly away from and toward shorelines (Fletcher et al. 2012). They are also under ever-increasing stress as rising sea levels and extreme weather events continue to impact them at an increased rate, resulting in higher frequencies of wave swells, storms, and mounting rates of erosion (Fletcher et al. 2012).

Despite high levels of vulnerability to natural hazards, coastal property in Hawai'i makes up some of the most valuable and highly-sought after real estate in the country (Fletcher et al. 2012). Shorelines play a critical role in popular imaginaries and reproductions of Hawai'i, and contribute to the state's multi-million dollar tourist industry (e.g. Trask 1991, Williams & Gonzalez 2016). Shorelines are also sites where subsistence fisheries are accessed and maintained. Subsistence fishing and harvesting practices have remained important for social, cultural and economic reasons. From 2003 to 2013, the estimated average annual fish catch for recreational, subsistence and cultural purposes on Hawai'i Island was 406,000 pounds. These multiple uses for and relationships to coastal environments interact in dynamic ways along

Hawai‘i Island shorelines, and are likely to be even further complicated in the future as impacts from a changing global climate continue to manifest.

The United States Geological Survey (USGS) has identified shoreline monitoring and extent as an effective way of measuring changes to coastal environments caused by climate change. In a 2012 report on Hawaiian shoreline change, USGS identified an objective to establish effective methods for locating and defining shorelines to standardize shoreline analysis protocols. These methods include evaluation of geomorphic features, water marks, tidal datum, and elevation (Fletcher et al. 2012). According to the report, the ongoing pressure on shorelines posed by climate change makes the identification and integration of accurate shoreline proxies essential for effective management of coastal ecosystems, property development, and public access (ibid). However, the proxies identified as appropriate for defining shorelines do not take into account how various human uses and understandings of shorelines also play a role in their creation as places.

Hawai‘i Island Shorelines as Liminal Places

Shorelines exist in spaces between widely represented dualistic notions of land and ocean. Common perception classifies shorelines as edges, interfaces between land and sea, margins, or boundaries. Catherine Leyshon argues that defining shorelines simply as something that lies between two things neglects their status as sites of continual becoming, occurring through multiple interconnected scales and bound up with cultural imaginaries (2018). Typical Eurowestern concepts of shoreline, in addition to the geomorphological effects of sea level rise and erosion, have resulted in the “squeezing” of coasts to the edges of natural resource policies and land masses (Shipman & Stojanovic 2007). Leyshon calls for a more radical characterization

of shorelines as liminal spaces, moving beyond policy recognition of the constant transformations wrought by tidal movements and the need for physical proxies to measure them in order to explore the “symbolic status of coasts as ever-changing conjoined cultural and natural landscapes in time and space” (2018, p.156). Such a characterization would recognize shorelines as the complicated places they are rather than relying on positivist constructions of shorelines based purely on physical features.

Tim Ingold argues that spatial segmentation of land, such as the designation of shoreline areas, is the result of human endeavors to measure complex everyday experiences of dwelling in the world by associating portions of the earth’s surface with symbolic meaning, delineated by distances and quantities (1993). Unlike spaces, places are located *within* landscapes, not on top of them, and therefore are not quantifiable (Ingold 1993, Tuan 1979). Paul Cloke and Owain Jones (2001) posit that analyzing the ways that humans attach culture and representations to landscapes is crucial for illuminating the multiple flows of meaning and socio-historical contexts that are often co-present in creating places. Building on Ingold’s ideas (1993), they argue for examinations of places as “taskscape.” These are intertwined, constantly shifting material and discursive landscapes formed by the everyday experiences, activities and representations enacted in and applied to places (ibid). Such analyses can show how the continuous binding together of nature and culture results in multiple understandings of a place despite it having a set spatial location. Conceptualizing Hawai‘i Island shorelines as taskscapes and fluid places influenced by complicated assemblages of socio-ecological components contributes to Leyshon’s call for a more radical consideration of shoreline liminality.

Defining Blue-Space Benefits

I use the term blue-space benefits to discuss some of the ways that individuals on Hawai‘i Island value shorelines based on how they understand them as places and taskscapes. Blue spaces, or spaces that contain a naturally-occurring body of water, are known in the field of health geography as health-enabling spaces, in part because they make recreation available to a wide range of healthy/unhealthy body types (Gascon, Zijlema, Vert, White, & Nieuwenhuijsen, 2017). Literature on benefits derived from blue spaces overlaps with work done to evaluate Cultural Ecosystem Services (CES), in that both deal with how “ecosystems contribute to the non-material benefits (e.g., capabilities and experiences) that arise from human-ecosystem relationships” (Chan et al. 2012 p.9). Both blue-space benefits and CES focus largely on the connection between intangible benefits and physical features of environments.

Blue spaces are ascribed with many different meanings for different individuals, based on symbolic and metaphysical associations with material landscape (Foley & Kistemann 2015). Ronan Foley and Thomas Kistemann argue that “meanings of places, which certainly vary between groups and individuals according to their cultural, social, spiritual and individual imprints, substantially contribute to the variation in the therapeutic landscape experience” (2015 p. 161). They call for examinations of blue space geographies across cultural contexts in order to understand how various associations of water with healing, spirituality and wellbeing are engendered in social, cultural, and economic contexts. In addition, examinations of shoreline areas as not only health enabling places but as a luxury spaces for tourist consumption are lacking (Foley & Kistemann 2015). I take up Foley & Kistemann’s suggestions by examining how blue-space benefits are enacted by different groups on Hawai‘i Island, including tourist populations.

Alder Saxena and colleagues (2018) argue that multiple valuations of benefits derived from the same landscape can come into conflict with each other, and that pre-existing power relationships dictate whose values are prioritized in policy and enforcement. I build on this argument by presenting processes stemming from underlying political-economic realities that I found controlled the ability of my research participants to access blue-space benefits. The unequal ability to access “green spaces” is a well-documented environmental justice and health issue (Wolch, Brybe & Newell 2014). Inequities in abilities to access blue spaces have been less examined. In a study assessing how perceived distance to urban blue spaces affects physical and mental health, the authors found that use of blue space decreased with increased walking distance (Volker et al., 2018). In other words, decreased perceived accessibility to blue spaces resulted in less use and therefore fewer mental and physical health benefits from interacting with blue space.

Defining Access

As Nancy Peluso writes, “if landscape is thought of as an artifact of human consciousness and therefore subject to multiple interpretations, visions, and memories, it becomes ever more important to understand how the meanings and value of the landscape shape the processes and institutions of access to it” (1996, p. 545). In their theory of access, Jesse Ribot & Nancy Peluso (2003) argue that unlike concepts of property that are based around definitions of *rights*, access is the *ability* to derive benefits from resources. The ability to benefit from access to resources is mediated through various processes of control and maintenance, exercised through legal institutions, and structural and relational mechanisms that exist on individual to state levels (ibid). Notions of accessibility to resources or spaces are embedded in broad arrangements of

political-economic and ecological relationships. Access cannot be separated from continuously shifting realities of individual and group socio-cultural positionality, flows of power, and historical moments in time. I build on Ribot and Peluso's work by exploring various abilities to benefit from access to shorelines on Hawai'i Island, with a focus on how different understandings and valuations of shorelines as places influence control and maintenance of access. I use the term "enaction of access" throughout this paper to describe how different individuals experience and embody access dynamics that are formed through legal and social structures.

Rachelle Gould and colleagues' 2014 examination of cultural ecosystem services provided by forests on Hawai'i Island identified two emergent themes: inequitable access to ecosystems and impacts of postcolonial processes. They called for further exploration of these themes. I take up their suggestion by examining how access relations on Hawai'i Island are complicated by postcolonial realities. The term "postcolonial" refers not to a time after colonialism has ended, but to the ways that colonialism continues to impact the present (Willems-Braun 1997). One way that postcolonialism is expressed on landscapes is through processes of exclusion that "express the tensions between colonizer and colonized, the latter subordinated and defined as the 'subaltern' other" (Home 2003 p. 293). On Hawai'i Island, colonizer views of property, land, and what it means to access them are essentialized and legally codified, while traditional native Hawaiian views are "othered" (e.g. Kame'eleihiwa 1992, Andrade 2008).

In their exploration of the California Coastal Act, Reineman and colleagues examine the unequal spatial distribution of shoreline access to California residents (2016). Like Hawai'i state and county law, the California Coastal Act legally mandates that all shoreline in the state must be

publicly accessible (Reineman et al. 2016). The findings of the study show that despite the existence of the California Coastal Act, 25% more White people than is predicted by total state population proportions live within 1km of a shoreline access point, while about 60% fewer African Americans do. The authors argue that this result indicates the state's failure to "fairly undertake its responsibility as the trustee for a public resource" (ibid, p.94). In a later chapter, I build on Reineman's employment of spatial analysis of shoreline access to show how demographic distribution on Hawai'i Island interacts with the locations of shoreline access points. Shoreline access point locations are determined through a variety of processes including legal structures and the deployment of "expert opinions." I will explore these processes in the following section.

Demarcating Access Beginnings and Endings on Hawai'i Island Shorelines

In his paper on spatial planning, Walsh calls for analyses of policy and planning approaches that examine the implications of everyday understandings of boundaries, territory, and governance structures, in addition to examining how place is conceived by different actors (2014). He argues that it is through examination of these factors that a more complete analysis of different understandings of and experiences of place might occur (Walsh 2014). Here, I discuss some of the relevant legal processes that define shorelines in the state of Hawai'i. These processes play a crucial role in the implementation of public access laws because they determine where the boundaries between public shorelines and private property begin. I then go on to describe a series of court cases that have contested legal definitions of shoreline boundaries and have affected the language used to enforce public shoreline access. I also describe ambiguities surrounding the protection of Native Hawaiian customary gathering rights. I finish by explaining

how the locations of shoreline access points and shoreline boundaries are established on Hawai‘i Island specifically.

Locating Shoreline Boundaries

Locating shorelines in Hawai‘i is an ongoing and highly contentious process. Traditional and legally codified practices protecting public shoreline access in Hawai‘i date back to at least the *Māhele* of 1848, and are upheld to this day in Hawaiian courts and statutory law (e.g. McGregor 1996, Vance & Wallsgrove 2007). Currently, multiple official protocols are required to delineate the location and extent of shoreline areas (Vance & Wallsgrove 2007). These protocols include shoreline certifications and the establishment of seaward boundary lines – two similar processes that are used to implement two very different policies. Confusion and legal conflict surrounding these protocols are indicative of the fluidity of shorelines as places, and of how difficult it is to define them even using physical elements.

Shoreline certification guidelines laid out in Hawai‘i’s Coastal Zone Management Act (CZMA) are used to ensure that property owners and coastal developers do not build too close to the ocean. Shoreline certification is used to establish the beginnings of “setback” areas that act as buffers between coastal developments and the shoreline (Haw. Admin. R. § 13-222-1). The certification process must be undertaken by coastal property owners seeking to develop or alter their privately-owned “setback” areas to avoid violating CZMA regulations. Applications for shoreline certification are publicly posted bi-monthly via “The Environmental Notice” and a fifteen-day public comment window is allowed (Haw. Rev. Stat. § 205A-42(b)). Accepted or rejected applications for shoreline certification may be appealed.

Shoreline certification is valid for twelve months before annual re-certification is needed, except in cases where shoreline is “fixed” by government-approved built structures (Haw. Rev. Stat. § 205A-42(a)). Coastal property owners who undertake the shoreline certification process must have the capital means to annually hire a privately licensed land surveyor and to create maps and photographs of the “suggested” shoreline (Vance & Wallsgrove 2007). The extent of shoreline space determined by shoreline certifications constitutes the total acreage of shoreline available for public access, and also determines the areas in which coastal property owners are free to do as they wish.

While the purpose of shoreline certification is to locate the shoreline in space so that coastal property developers can ensure legal compliance with the CZMA, seaward boundary lines are used to determine ownership of coastal areas so that the state can uphold its responsibility to ensure as much lateral public access to shoreline as possible (Vance & Wallsgrove 2007). Lateral accessibility means that shoreline users are able to walk uninterrupted along stretches of coast. Seaward boundary lines define the limits between public and private, and are established through state surveys conducted separately from shoreline certification surveys (ibid). They are also often established through court actions in cases of conflicting interests over the end of public shoreline and the beginning of private property.

Legal Contestation of Shoreline Boundaries

Despite efforts made by the Board of Land and Natural Resources (BLNR) to standardize shoreline certification processes undertaken by property owners under the CZMA, legal contestation and conflict over shoreline boundaries occurs frequently in Hawai‘i. The BLNR’s guidelines for locating shorelines includes measuring elevation, salt deposits, rock coloration, biological indicators, seasonal wave statistics, and oral evidence provided by locals (Haw.

Admin. R. § 13-222-16(b)(12)). However, the constantly shifting and highly symbolic, cultural, representational and ecological elements of shorelines means that locating them is inherently difficult. Attempts to bound shorelines that are of value to many different people for many different reasons often results in conflict, no matter how many different material proxies are used to “find” the shoreline.

In the 1995 Public Access Shoreline Hawai‘i (PASH). v. Hawai‘i County Planning Commission case, a coalition of environmental activist groups argued that the BLNR’s definition of shoreline undermined the state’s commitment to ensuring public use and ownership of as much of Hawai‘i’s shoreline as possible (Pub. Access Shoreline Hawai‘i v. Bd. Of Land & Natural Res., No. 05-1-1332-07 VSM). The BLNR’s definition at the time stated that public shoreline bounds would be determined by the edge of vegetation growth, or by the debris deposited by waves if no vegetation was present (Brief for Public Access Shoreline Hawai‘i & Sierra Club as Amici Curiae at 2, *Diamond v. State*, 112 Hawai‘i 161, 145 P.3d 704 (2006)). PASH successfully advocated for the revision of this language by arguing that it favored the presence of vegetation in determining seaward boundaries when a debris line was also present (Vance & Wallsgrove 2007).

In, 2006 plaintiff Diamond filed an appeal against a shoreline certification, arguing that surveyors had failed to properly locate the extent of an area of shoreline despite photo evidence of waves reaching further mauka. The BLNR had used shoreline vegetation as proof of the shoreline’s edge, despite the fact that this it was composed of salt-tolerant plants induced by the property owner who had requested the certification. As a result of this case, the state restricted the agency exercised by the BLNR to determine shoreline boundaries at their discretion by ruling that the upper reaches of the wash of waves must always be used to determine shoreline location,

except during storm events (Vance & Wallsgrove 2007). The court also ruled that only “naturally-rooted” shoreline vegetation may be used as a proxy to determine wave extent.

These cases have resulted in the retraction of official language that previously made it possible for shoreline property owners to shrink the public shoreline by employing what Ribot & Peluso (2003) term a form of “technological” access control, by artificially cultivating salt-tolerant plants. However, there are still legal gaps in understanding what constitutes shoreline boundaries. Locating the “upper reaches of the wash of waves,” for instance, remains hazy. What types of waves may be used to do this? What counts as “storm” vs. “non-storm” waves? In addition, the ability of shoreline surveyors to actually tell the difference between naturally and artificially rooted shoreline vegetation is questionable (Vance & Wallsgrove 2007). Attempts to mark out public shoreline areas are thwarted by nature’s complicating influence.

Customary Access to Shoreline Resources

Like shoreline definitions, customary resource access rights suffer from policies that fail to recognize the liminal, ever-shifting discursive and material nature of shorelines. Similar to their rulings on shoreline extent, Hawaiian courts have stated that it is the responsibility of state agencies to “protect customary and traditional rights to the extent feasible under the Hawai‘i Constitution and relevant statutes” (*Public Access Shoreline Hawai‘i & Angel Pilago v. Hawai‘i County Planning Commission and Nansay Hawaii, Inc.*). As codified in the constitution and stipulated under Article 7 of the Kuleana Act, state law protects the right of residents to engage in harvests for subsistence foods and engage in other traditional activities. The Hawaiian court has upheld this right exists even on privately-owned property (e.g. *Kailipi v. Hawaiian Trust Co., Pele Defense Fund v. Paty, Public Access Shoreline Hawai‘i & Angel Pilago v. Hawai‘i County Planning Commission and Nansay Hawaii, Inc.*)

Customary rights are only guaranteed to be upheld on undeveloped private property. They may be enacted on developed properties only if proof can be provided that the activities in question have been continuously practiced for a lengthy period of time, and that any potential “harm” caused by activities is balanced with the interests of the property owner (Macgregor 1996). The court has not ruled on the extent to which non-Native Hawaiians may enact customary rights. According to Davianna McGregor, the court has technically incorporated ongoing Hawaiian subsistence customs into contemporary law (1996). However, ambiguities remain over how Native Hawaiians can actually legally enact customary rights on a daily basis without being accused of trespassing or having to resolve conflicts with property owners.

Hawai‘i Island Laws Governing Public Shoreline Access

Chapter 34 of the Hawai‘i County code, titled “Public Access,” stipulates that subdivisions and developments along the island’s coast must dedicate a public right-of-way prior to receiving final approval for proposed plans. There are few concrete regulations for what access points actually need to look like or include, beyond the required width of the right-of-way. As a result, public shoreline access points and trail conditions on Hawai‘i Island are highly varied. They range from well-marked, paved roads with parking lots and bathrooms, to dirt paths hidden between trees and snaking between houses.

The distance between public access points is dependent on the zoning areas they are located within and their proximity to resorts or hotels. Public access locations and necessity is determined by the county planning director (HI County Code, § 34 1996). Rules governing public access to shorelines on Hawai‘i Island are bundled together with governance of access to public mountain areas, making no distinction between the unique cultural representations and

physical components that constitute each of them. Public shoreline access points are only required to be included in the development of multi-family subdivisions. These access points are maintained and their easements held by the county of Hawai‘i. Undeveloped plots of land are not required to have public access points, resulting in tracts of shoreline properties where no clear access is provided. Users attempting to access shoreline via these properties could be prosecuted for trespassing, unless they are able to somehow prove they have a valid claim to exercise customary subsistence access rights in the area (HI County Code, § 34 1996, ord 96-17, sec 2).

While shoreline definitions proffered by the state and Hawai‘i County do acknowledge the ever-changing physical materiality of shorelines, frequent legal contestation over the locations of physical shorelines shows that the law does not adequately account for these changes. Additionally, despite court assertion of obligatory protection of customary rights, Hawai‘i County’s implementation of the public shoreline access law does not take into account the relational, fluid aspects of access control and maintenance as they occur in daily lived experiences. According to the late Jerry Rothstein, the founder of Public Access Shoreline Hawai‘i (PASH), this failure has resulted in “administrative erosion” of publicly-owned Hawaiian shorelines (2003). Rothstein called for all island citizens invested in public shorelines to fulfill their duty to involve themselves in shoreline certification and seaward boundary processes, to ensure that shorelines are correctly located. I argue that in order to truly uphold public shoreline access rights, governmental efforts to accurately locate Hawaiian shorelines must move beyond attempts to simply enable lateral accessibility to include the spatial, temporal, material and immaterial factors that are implicated in the constant becoming of shorelines and human access to them.

HAWAI'I ISLAND CONTEXT

This section provides key context regarding historical socio-cultural and environmental realities and conflicts that continue to intersect today in shoreline spaces and in current shoreline access dynamics. However, this section should not be read as a complete overview of Hawaiian ways of knowing, cosmologies, relationships to land, or of the colonial history of the state of Hawai'i. In her book *Native Land and Foreign Desires*, Lilikalā Kame'eleihiwa writes that almost all accounts of the history of Hawaiian lands have been written by authors with Eurowestern worldviews. This has necessarily resulted in a skewed and incomplete understanding of traditional Hawaiian relationships to land and of the impacts of colonial processes in Hawai'i (1992). In the following examination of the socio-historical context of public shoreline access in Hawai'i, I have tried as much as possible to center the work of Native Hawaiian scholars.

Traditional Hawaiian Place Relationships

*If you don't know your mo'okū'auhau, your geneology, it's like, you're nobody.
Why? Because if you don't know who your ancestors were and what they did, and
how that informs sort of, who you are, then, I don't know, what are you doing?
What is your purpose for being here? Do you know?*

– Leia, longtime Hawai'i Island resident, Age 58

Ancient Hawaiian Land Tenure

Each Hawaiian island is divided into moku o loku, large slices of land running from the tops of the volcanic mountains and forested uplands, or mauka, down toward the ocean, or makai. Moku are further divided into ahupua'a, smaller mauka-to-makai strips that ideally

contained all resources needed for sustenance. Traditionally, lands were typically re-divided each time a new mo‘i, or king, took power (Alexander 1891). Mo‘i were ali‘i nui, high chiefs who ruled with the authority of the mana, or divine power, that was derived in part from ancestral spiritual energy and could also be increased throughout life through engaging in particular activities (Pukui & Elbert 2003, Kame‘eleihiwa 1992). Genealogies played a key role in the structure of ancient Hawaiian society, creating many different levels of chiefly power while at the same time allowing for fluid understandings of family and social flexibility (Kaunani 2008), and they remain critical cultural connection points to ancestors for contemporary Hawaiians, as the quote at the beginning of this section demonstrates.

Although there is no singular foundational account of Hawaiian cosmological origins, the Kumolipo is a prominent genealogical narrative that names Wākea (sky-father) and Papa (earth-mother) as primordial humans whose mating created the intertwined lineage of Hawaiians and ‘āina, or land, literally translated as “that which feeds” (Liliuokalani 1895, Andrade 2008). Ali‘i and maka‘āinana, those living and working on the ‘āina, described as “freeholders” of land by Carlos Andrade (2008, p.72), were thus bound together through their common origins (Kaunani 2008). Ancient systems of land tenure and management consisted of complex social arrangements of chiefs and land caretakers, contingent in part on these common roots. These systems are not easily categorized using Eurowestern epistemologies (ibid), but here I attempt to provide an overview of the way access relations functioned under the ahupua‘a system.

Horizontal regions of ahupua‘a were managed with an understanding that all zones both contain unique characteristics and are interconnected. Although resource management systems associated with ahupua‘a are no longer in place, the locations of ahupua‘a boundaries and knowledge of characteristics of various ahupua‘a still play an important cultural role in Hawai‘i.

Ahupua‘a encompass cool, wet uplands known as wao maukele and wao akua, highly elevated regions of rainforest and forest known to be “the wilderness of the gods and/or ghosts” (Mueller-Dombois 2007, p.26). As the domain of the gods, forested areas up mauka were little used or even visited by Hawaiians in ancient times. Below wao maukele and wao akua lands lie agricultural areas where in ancient times, people actively worked to cultivate the land. Land use included planting things like kalo (taro), banana, sweet potatoes and yams as well as conserving wild resources like shrubs used for cordage, ferns, and trees (Mueller-Dombois 2007).

Connected to cultivated lands are transitional alluvial and coastal zones that include both land and sea, named kahakai (ibid). These stretch out into the ocean to encompass nearshore reefs and bays, and traditionally were managed as extensions of upland “garden” areas (Andrade 2008 p.30). Shoreline resources and conditions are seen as intertwined and created through the ecological health of other zones; Hawaiian understandings of shorelines are therefore not defined by bounded “edges” but contain the reality of the whole ahupua‘a. Traditionally, caring for and conserving kahakai areas was understood as the responsibility of ahupua‘a residents, allowing them to benefit from continued access to fishing grounds and shoreline resources in return (Andrade 2008).

In ancient times, ali‘i at different levels of rank were in charge of regulating the social and ecological landscapes of Hawai‘i, and bridged the gap between the physical and spiritual realms (Kame‘eleihiwa 1992). The mo‘i assigned portions of land to ali‘i and retained some for himself that was cared for by his own personal attendants. Ali‘i were responsible for the management of land awarded and for its distribution to maka‘āinana (Alexander 1891). Their directions were carried out by konohiki, ali‘i of lesser rank who acted as land managers or stewards (Kame‘eleihiwa 1992). Land and production taxes were paid by all levels of society to

the mo‘i, and failure to deliver these was equivalent to forfeiting land rights (Alexander 1891). Land holders of all social ranks exercised the same rights as the mo‘i over the land users ranked beneath them, so that the ‘āina was held jointly in trust by the mo‘i and those he awarded land to. Although this system bears some resemblance to European feudal systems, unlike these systems maka‘āinana were never required to perform military service in return for their land use (ibid).

Reciprocal Relationships with ‘Āina

Carlos Andrade defines ‘āina as that which not only provides bodily sustenance from the land and ocean, but also nourishes the “social, cultural, and spiritual senses of the Hawaiian people” (Andrade 2008, p.3) Ancient systems of land tenure and management accounted for this multilayered sustenance through formalized, reciprocal flows of responsibilities and rights that held individuals at all social levels accountable for fulfilling their material and spiritual duty to care for ‘āina and one another. Maka‘āinana enjoyed generous, universally recognized usufruct user rights to ahupua‘a resources in return for payment of yearly taxes (Andrade 2008, Alexander 1891). This resource use came to be regulated by the kapu (taboo) system, enforced at all social levels. The kapu system dictated proper social behaviors and placed restrictions on what could be harvested and where within ahupua‘a, based on seasonal observations (Andrade 2008). According to Kame‘eleihiwa (1992), the ali‘i and the mo‘i were responsible for completing extensive ceremonies to honor and please the akua, loosely translated as gods, in return for the goods and revenue the maka‘āinana rendered them. If the ali‘i failed to adequately fulfill their duty to protect and provide for the maka‘āinana ranked beneath them, the maka‘āinana had the right to depose them (ibid).

Konohiki enforced ahupua‘a boundaries and kapu regulations. Permission was required to allow maka‘āinana from outside ahupua‘a boundaries to access and harvest resources within

another ahupua‘a (Ayers et al. 2018). Withing ahupua‘a, access to resources was shared by everyone who lived there, and an unwritten land ethic of conservation and respect was passed down generationally (Andrade 2008, Matsuoka & McGregor 1994). This ethic stressed that demonstrating the ability to mālama (to care for, keep, or take heed of) the ‘āina within an ahupua‘a, including fisheries and upland areas, was integral to fulfilling the kuleana of maka‘āinana (Andrade 2008). Kuleana encompasses the reciprocal flow between the privilege to benefit from access to resources and the responsibility to ensure health and regeneration of those resources (Pukui & Elbert 2003). Resources were used as needed, with an understanding that over-consumption would lead to depletion and would have holistically negative ramifications for the ‘āina and for people (Matsuoka & McGregor 1994).

According to historians Matsuoka and McGregor, the traditional contingency of physical and spiritual wellbeing on understanding, working with, and caring for the natural world resulted in a relational ontology that continues to endure for Hawaiians, wherein “the self does not stand apart from natural phenomena, but is one segment of a working whole” (1994, p.103). The attentive management of resources under the traditional ahupua‘a system supported pre-contact population levels of at least 200,000-400,000 people, and possibly as many as 800,000 (Ayers et al. 2018). The socially stratified ahupua‘a system of land management was not always perfect, as demonstrated by some records of conflict and resource scarcity. However, it did clearly delineate responsibilities to place and provided for the physical and metaphysical nourishment of Hawaiians (Andrade 2008). The ahupua‘a system effectively enacted a relational ontological understanding of land, sea, and natural resources still in existence that acknowledges the interconnectedness not only of regional ecosystems and places, but of humans and ‘āina. Traditionally, access to benefits derived from shorelines and coastal resources was therefore also

relational, controlled and shared on multiple interwoven levels through fulfillment of kuleana and maintenance of mālama practices. At all levels of society, the ability to benefit from resource access was related to care invested in place.

Adaptation and Appropriation of Hawaiian Land

The Advent of Private Property

In 1810 King Kamehameha I, the mo‘i of Hawai‘i Island, unified the Hawaiian archipelago for the first time and ruled the islands under a centralized monarchy. This unification came during a time when traditional land management and tenure systems were being impacted by global flows of commerce, introduced by foreigners who had begun to establish themselves in Hawai‘i following Captain Cook’s “discovery” of Hawai‘i Island in 1779 (Kame‘eleihiwa 1992, Andrade 2008). According to Carlos Andrade, at this time Eurowestern settlers asserted their wish for a private property system in Hawai‘i so that they could begin to accrue wealth and not be subject to the Native Hawaiian customs of land tenureship they viewed as primitive and backwards (Andrade 2008). The introduction of commerce and “new wants” led some ali‘i into debts that they could only pay back by exacting increased taxes on the maka‘āinana within their ahupua‘a. In some cases, these debts led to evictions of maka‘āinana from land and random seizures of their belongings (Alexander 1891).

In 1826, war ships appeared off Hawai‘i’s coast to inquire about debts owed by ali‘i to U.S. merchants. Their presence made it clear that annexation was a threat if foreign powers did not get what they wanted, and if Hawai‘i did not navigate the global political stage correctly (Van Dyke 2008). Foreign missionaries also pushed for the development of a private property system as part of religious “enlightenment.” The Native Hawaiian population was declining at a

concerning rate due to exposure to settler-born diseases; Sumner La Croix and James Roumasset estimate that a population of about 225,000 Hawaiians in 1778 dropped by 1849 to 80,641 people (1990). Missionaries argued that a private property system would incentivize maka‘āinana to take better care of themselves by allowing them to profit directly off their land (Kame‘eleihiwa 1992).

Struggling to balance the interests of foreigners in the privatization of land and to protect the rights of maka‘āinana, King Kamehameha III signed the Declaration of Rights in 1839. This was a move away from traditional customary unwritten law, towards codified Eurowestern legal structures. In efforts to ensure that Hawaiian relationships to ‘āina would be preserved forever within this new framework, the King and other ali‘i resolved to “separate and define the undivided shares” of Hawaiian lands (Alexander 1891). The Declaration of Rights officially recognized three tiers of people who held vested rights to Hawaiian lands: the mo‘i, the ali‘i, and the maka‘āinana (Van Dyke 2008). Previously all land had been held in a multi-layered system of joint trust between the mo‘i, ali‘i, konohiki and maka‘āinana. However, the ruling chiefs came to believe that bisecting these interests from one another was the only way to ensure that Hawaiian land rights could be protected given new contexts of capitalist trade, foreign interests, and global pressure.

In 1840, the mo‘i established a constitutional monarchy, with himself acting as the executive branch and advised by a two-housed legislative branch and a judicial branch (Andrade 2008). He and the ali‘i took steps to ensure that Hawai‘i was recognized as an independent nation by foreign governments, including the United States, England and France, and entered into international treaties (Alexander 1891). In 1846, a Land Commission was formed to determine the quantity of land that each social tier established as having vested rights in

Hawaiian lands should be allowed to lay claim to. The Land Commission was in charge of reviewing claims to Hawaiian land and determining “the nature and extent of each claimant’s rights in land.” (ibid). Land claims were required to be presented to the Commission by February 14th, 1848, after which time all unclaimed land defaulted to the Hawaiian government. This process of determining the validity of claims was a lengthy one, because the interwoven and regionally variable combined land tenureship of mo‘i, ali‘i, konohiki, and maka‘āinana was not easily divided into separate interests. Centuries of shared use and the joint holding of ahupua‘a made it difficult to determine what party held the most valid claim to specific land.

Eventually in 1847 a final set of rules was decided upon by the mo‘i and his privy council for how to separate land interests. These stipulated that the king would retain all of his private lands, subject to claims of the resident maka‘āinana on them. Of the remaining lands, one-third would become the property of the Hawaiian government, one-third would go to the ali‘i and konohiki in proportion to their possessions, and one-third to the maka‘āinana (Alexander 1891). Next came the process of legally separating the previously undivided interests in land held by ali‘i, konohiki, and the mo‘i. The *Buke Māhele* or *Māhele Book* was used to record between 245 and 251 quitclaim agreements signed by ali‘i and konohiki releasing their interest in the mo‘i’s chosen land. The mo‘i likewise signed quitclaims for the land that the ali‘i and konohiki wished to retain. The *Buke Māhele* erased the rights of each party in the lands of the other, but did not confer legal land titles. These had to be sought by ali‘i and konohiki through the filing of land claims and by paying a processing fee of one-third of the unimproved value of land. The ali‘i and konohiki were then required to release one-third of their controlled lands to the pool of government lands (Van Dyke 2008). In theory, one-third after this was to be given to maka‘āinana if they filed valid claims for it.

After all quitclaims had been signed in the *Buke Māhele*, the mo‘i initially held title to around 2.5 million acres, or 60 percent of all Hawaiian land. However, after identifying the acreage that he wanted to keep for himself due to personal ties, the mo‘i ceded 1.5 million acres of his land to the government. Ali‘i, konohiki, and mo‘i all relinquished significant portions of ‘āina. In the end, the mo‘i retained 984,000 acres of land, the government held 1,523,000 acres, and the ali‘i held 1,619,000 acres (Van Dyke 2008). Each of these portions of land was subject to land claims filed by maka‘āinana and deemed valid by the Land Commission. However, although the founding principle of the *Māhele* had been to ensure that maka‘āinana retained one-third of lands, according to Van Dyke they were “the clear losers in the division.” The Land Commission was in charge of collecting payment from maka‘āinana with claims that were deemed valid, to cancel out chiefly interest in the land. If claims were not filed by February 14th of 1848, land titles were declared the property of the Hawaiian Government (Van Dyke 2008). Many maka‘āinana never had a chance to file land claims after the quitclaims were recorded in the *Buke Māhele*, because ali‘i had already begun selling off the lands they had been awarded to pay off debt or accrue wealth. Many did not understand that they needed to file land claims in order to maintain access to lands they were accustomed to caring for (ibid).

Following the *Māhele*, the *Kuleana Act* of 1850 was passed in attempts to address difficulties faced by maka‘āinana in filing land claims. The act allowed maka‘āinana who did not have the money to pay land claim fees to file free claims for areas that they were currently cultivating. However, many maka‘āinana did not understand how to complete the extensive paperwork and land-surveying process that was required to file these claims (Van Dyke 2008). The surveying process to determine claim validity and parcel location was “erratic,” however, and frequently resulted in contestations and conflicts of interest (ibid). Many maka‘āinana,

completely unfamiliar with what private property was, did not even realize that they had to formally claim private ownership of the land they had lived and worked on for generations (Kanaʻiaupuni & Malone 2006). As part of the *Kuleana Act*, the Land Commission declined to grant land claims made for areas extending below the high water mark, ensuring that shorelines were demarcated as public spaces (Alexander 1891).

The Act did not take into account the ways that makaʻāinana cared for and used the entirety of the resources in an ahupuaʻa in order to maintain a livelihood, not just what was in the immediate areas where they dwelled (Andrade 2008). Recognizing this as a serious flaw, King Kamhameha III requested that the act be amended to ensure that “when the landlords have taken allodial titles to their lands, the people [makaʻāinana] on each of their [the landlord’s] lands shall not be deprived of their right to take firewood, house timber, aho cord, thatch, or ti leaf from the land on which they live” (Hawaiʻi Revised Statutes, section 7.1). “Allodial title” refers to ownership of land independent of any superior landlord. Hawaiians of all social classes could hold these titles after the filing of land claims that were deemed valid by the Land Commission. The provision inserted by the moʻi secured the rights of people to access natural resources, waterways, and roads even if they passed through newly privately-owned lands. However, according to Andrade, ever since the insertion of this provision, “lawsuits (brought mostly by foreigners) have challenged and attacked the right of makaʻāinana to continue to draw upon ahupuaʻa resources for their survival,” and gathering rights have been subordinated to Eurowestern frameworks of private property and ways of knowing (2008, p.83). Occurrences of inequities in lived experiences despite legal protection of traditional rights will be further explored in coming chapters, in the context of Hawaiian public shoreline access laws.

In conjunction with the *Kuleana Act*, the *Alien Land Ownership Act* was passed in 1850, allowing foreigners to buy Hawaiian land in fee simple terms. Since the *Māhele* had established a private property system and abolished ancient joint tenureship, ‘āina could now be bought and sold, and foreigners took advantage of this. After the *Alien Land Ownership Act* was passed, government lands set aside to be bought in fee simple terms by maka‘āinana who had not filed other claims were snapped up by mostly White, Eurowestern settlers. These settlers not only had access to more capital assets than maka‘āinana, but also were far more familiar with private land ownership customs. In this way, they acquired almost two-thirds of government lands set aside for fee-simple purchase (Van Dyke 2008). Foreigners were also free to purchase lands being sold by ali‘i to cover their debts, essentially leaving maka‘āinana tenants on those lands homeless.

Land purchase allowed settlers to exercise exclusionary property rights and increase their wealth. It also furthered settlers’ interest in having a hand in the political and economic workings of Hawai‘i. In the end, far fewer *Kuleana Act* claims were filed by maka‘āinana than the mo‘i and ali‘i had hoped. The claims that were granted averaged around only 3 acres each (ibid). In total, less than one percent of Hawaiian land was awarded to less than twenty-nine percent of eligible maka‘āinana via *Kuleana* claims (Kame‘eleihiwa 1992). Although the *Māhele* and the *Kuleana Act* attempted to encourage maka‘āinana to possess their rightful share of land, in practice Hawaiian land became available for anyone, including settlers, to purchase (ibid).

The United States’ Illegal Annexation of Hawai‘i and Statehood Designation

In 1887, a group of American sugar cane plantation owners in Hawai‘i held the mo‘i at the time, King Kalākaua, at gunpoint and forced him to sign what became known as the “Bayonet Constitution.” Under this constitution, government officials were to be elected, rather than appointed by the mo‘i (Van Dyke 2008). The Constitution stipulated that only taxpaying

male residents of Hawaiian, European, or American descent who owned at least \$3,000 in taxable property, or had an annual income of at least \$600, were eligible to vote for these officials. This ignored the voices of all non-European or American immigrants and women in Hawai‘i. It also effectively silenced many Native Hawaiian men due to socio-economic shortcomings caused in part by failure or inability to file valid land claims after the *Māhele*, and the extremely modest ~3 acre land holdings awarded via the *Kuleana Act*. This Constitution secured political control for the wealthy, mostly white property owners who had profited from the *Alien Land Ownership Act* (ibid).

After King Kalākaua’s death in 1891, his sister, Lili‘uokalani, became the Queen of Hawai‘i. She attempted to re-instate the monarch’s power to appoint government officials, but was strongly opposed by the members of her now largely foreign-led cabinet. The Queen’s attempt outraged a number of American settlers, who argued that it was a move to impede the democratic process. It provided the impetus that a group of White American plantation owners and business men, who advocated for a U.S. annexation of Hawai‘i via the aptly named Annexation Club, had been waiting for (Van Dyke 2008). On January 16, 1893, Annexation Club members illegally occupied a government office building and announced the establishment of a provisional government (Ayers et al 2018). One hour later, with American battleships stationed off the coast in support, the U.S. Minister to Hawai‘i recognized this government on the behalf of the United States.

Following this illegal overthrow, the Annexation Club prepared for the annexation of the Hawaiian archipelago by the United States and submitted an annexation treaty to the U.S. senate in 1893. After receiving word that the annexation treaty had been reached through illegal means, U.S. President Cleveland withdrew his support for it and launched an investigation (“The U.S.

Occupation,” n.d.). The resulting report concluded that the U.S. minister assigned to Hawai‘i had collaborated with personnel from the U.S. Marines and Navy to carry out an illegal overthrow, in violation of international law and the sovereignty of the Hawaiian Kingdom, and that it was the responsibility of the United States to reinstate Hawai‘i’s original constitutional government (H.R. Rep No. 53-17 at 586, 1894).

Despite this report, Cleveland’s successor, President McKinley attempted to ratify a second annexation treaty in 1897 but was unsuccessful thanks to protests submitted by Queen Lili‘uokalani and a petition signed by 21,169 Hawaiians (“The U.S. Occupation,” n.d.). However, on July 7, 1898, the U.S. succeeded in annexing the Hawaiian islands through the enactment of a joint congressional resolution, opening them for use as a military base during the Spanish-American war (U.S. Congress 1897, Van Dyke 2008). As a result of the annexation, the U.S. government illegally seized 1.75 million acres of Hawaiian land that had been held in trust by the Queen and the government, as stipulated by the *Māhele*. The U.S. government also violated the Hawaiian Kingdom’s sovereign right to self-determination by failing to respect its national independence (Chock 1995). In 1993 on the 100-year anniversary of the Hawaiian Kingdom’s overthrow, the U.S. Congress issued an “Apology Resolution” recognizing these violations, but the U.S. has never offered reparations for illegally acquired Hawaiian lands.

In 1959, the Hawaiian Islands became an official State of the Union in response to U.N. mandates that the U.S. bring about self-governance in their territories (Laenui 2011). The U.S. fulfilled the obligation to give territories a “choice” over their preferred form of governance by providing them the opportunity to vote for statehood or continued territorial status. There was no option provided for free association or independence from the colonizing country. Of the two choices presented, statehood gave Hawaiians more of a political voice. Additionally, those

eligible to vote were U.S. citizens who had lived in Hawai‘i for at least one year. This requirement allowed recent arrivals to the island a vote, but gave no voice to Hawaiians who had refused imposed U.S. citizenship in protest. This “intentional perversion of the truth” (Laenui 2011, p. 52) committed by the U.S. and the skewed voting process the American government initiated allowed them to continue denying Hawaiian rights to self-determination, while fulfilling their duties on the world stage as a member of the U.N.

Contemporary Context

Today, as Hawaiian scholar Haunani-Kay Trask points out, although most mainland United States citizens have very little knowledge of the economic, political, or cultural context of Hawaiian statehood, millions of them vacation in the Hawaiian islands each year (1991). The production of the Hawaiian Islands as a global mass-tourist destination came as a result of declining pineapple and sugarcane industries in the 1950s (Williams 2015). In an ironic twist after decades of enforced oppression, disempowerment, and degraded access to cultural-natural resources, research firms assisting government officials in marketing the islands assured them that “Hawai‘i’s cultural histories could make the islands one of the most desirable destinations on the globe, ensuring success for the long-term” (ibid, p.52).

In 2017, over 9 million people traveled to Hawai‘i as tourists (Chun et al. 2017). Hawai‘i is fetishized and lives in mainstream, White American imaginaries as a female-gendered escape into “paradise,” where the “aloha spirit” abounds (Trask 1991). Hawaiian cultural values are continuously appropriated to market plane tickets and hotel rooms, and to help the development of the tourism industry appear culturally sensitive. “The phrase *malama‘āina* – to care for the land – is used by government officials to sell new projects and to convince the locals that hotels

can be built with a concern for ‘ecology,’ ” writes Trask (p. 23, 1992). In reality, the ecology of Hawai‘i Island has been drastically transformed and damaged over the years as a result of increased strain on resources produced by tourist flows, introduced large-scale agriculture, and industrial extraction of resources like timber and fish. The introduction of non-native plants and animals to Hawai‘i Island for commercial, sport and aesthetic purposes has also had a devastating effect on Hawaiian ecosystems (Matsuoka & McGregor 1994). My own time on Hawai‘i Island was marked by the ubiquitous presence of invasive and introduced species including mongoose and feral goats, chickens, and pigs.

Place-making on Hawai‘i Island has evolved within the context of the illegal seizure of land, the violation of Native Hawaiian rights to self-determination, a precipitous decline in the Native population following contact with Europeans, the development of a global tourist economy, and increased ecological extraction and ecosystem transformation, to name just a few conditions. Opportunities to engage in Hawaiian ways of being on and with the ‘āina have been impacted and limited by these circumstances. However, the Native Hawaiian sentiment of aloha ‘āina, loosely translated as love for the land, remains pervasive (Matsuoka & McGregor 1994). Generational evolution of Hawaiians in relation to natural, physical, spiritual and social environments means that, “Hawaiian culture does not have a clear dividing line of where culture ends and nature begins” (Maly 2001, p.1) In the 1970s, a Hawaiian Cultural Renaissance occurred as pushback against income disparities between foreigners living in Hawai‘i and Native Hawaiians, inadequacies in the housing and education systems, institutional racism and decades of cultural oppression (Trask 1987). On Hawai‘i Island I witnessed the enactment of Hawaiian place-based values in both mundane and spectacular ways: wooden signs nailed to kiawe trees encouraging visitors to malāma beaches, gift shops selling hundreds of “aloha ‘āina” t-shirts,

statues, and signs erected in protest of a new telescope on the sacred summit of Mauna Kea. Perpetuating and adapting Hawaiian cultural values to current socio-economic and environmental conditions to ensure they are passed on to future generations is seen as a kuleana by many Hawaiians (Kame‘eleihiwa 1992, Andrade 2008). As Carlos Andrade writes of Hawaiians, “all of us are the manifestations of the places we live. When we learn and retell a story of the ancestors, sing a song about our places, and practice the skills and values passed on to us by our elders, we extend the life ways of our ancestors, prolonging the life and identity of our people into the time in which we live” (2008, p.146).

However, the ability of Native Hawaiians to enact traditions that were founded on reciprocal relationships with the environment is continuously threatened due to structural disenfranchisement of Hawaiian culture (Matsuoka & McGregor 1994). As critical sites of extended life-ways, shorelines on Hawai‘i Island are continuously re-created by individuals and the elements, and can be locations where socio-cultural narratives intersect and/or clash. It is important to keep the historic and cultural processes that have shaped the contemporary Hawaiian political economy and social environment in mind while considering the dynamics controlling access to benefits derived from shorelines on Hawai‘i Island, and the conflicts that arise as a result.

RESEARCHER POSITIONALITY AND SUBJECTIVITY

Geographer Risa Whitson argues that practicing feminist reflexivity involves “recogniz[ing] how aspirations and desires affect both what we research and how we position ourselves with respect to our research community...and considering how acknowledging our own multiple and fractured subjectivities can help us better understand those with whom we work” (2017, p.2). Feminist reflexivities not only examine how and why researchers think about and understand others in the racialized, cultural and political ways that they do, but also consider the ways that researchers think about themselves during the research process. In this section, I draw on Whitson’s (2017) framework of feminist reflexivity to consider both my positionality and my subjectivity as a researcher.

I traveled to Hawai‘i Island to work as a research assistant with little prior knowledge of the cultural, political, or social history of Hawai‘i. Growing up, I cannot recall ever being taught about the history of the United States’ involvement with the Hawaiian islands in school or at home. However, I consider myself a socially conscious critical thinker, interested in understanding and dismantling systems of power and privilege. On the plane ride over, when my flight attendant exclaimed that soon we would all be able to be landing in “paradise,” I remember scoffing. I, unlike the other, mostly white, mainlanders on the airplane, would not be a naive and culturally insensitive consumer of Hawaiian culture and land. In my head, I understood myself to be a politically and socially aware researcher who was enlightened enough to see the dark shadow of colonialism and racism hanging over Hawai‘i Island—a shadow that mere tourists were too blind or careless to see. Unlike the other passengers, I proudly thought, I was interested in the social, cultural, and environmental conflicts hidden beneath the glossy surfaces of the

resorts and golf courses; of course I was also interested deep-down in the secluded tropical beaches.

In reality, my positionality is similar in many ways to the other white mainlanders who were on the airplane. My interactions with Native Hawaiians and locals, especially during the process of collecting surveys on beaches, forced me to reckon with this positionality in uncomfortable ways. I am a white, cis-gender female college student from Vermont—almost as far away from Hawai‘i as one can get and still be in the United States. I had never been to Hawai‘i before, and had no experience with Polynesian culture other than what was inserted into U.S. pop culture; I had only very recently acquired some basic knowledge of the history of the state. I had stumbled upon an opportunity to do research in Hawai‘i, and because I have combined interests in travel and in building my resume, I had pursued it. I was as eager as everyone else on board the airplane to experience what the island had to offer.

Although I shared the same positionality as many of the white people who were visiting or had relocated to Hawai‘i Island, throughout the summer I consistently found myself relating to and sympathizing much more with locals who had multi-generational ties to the island. My subjectivity while interacting with people on Hawai‘i Island was influenced by my own relationships with landscape and place. I am the 6th generation in a line of dairy farmers who have farmed the same valley in upstate New York since 1856. In a long and painful process, I moved from that valley when I was starting high school because of a family falling out. I still actively grieve the loss of my relationship with that place and the experiences I had in a landscape that was filled with passed-down stories and lore. The memories I hold and the things I experienced on that farmland are a foundational part of my identity and academic interests, along with the knowledge that I will never experience quite that level of connection to a place

again. I don't want to glorify the origins of my family's farm, which itself is almost certainly situated on land stolen from indigenous people; I discuss it here because this background led me to relate to and empathize with research participants who expressed strong attachment to place and concern over their loss of access to benefits derived from shorelines.

As a University of Vermont student, I enjoy access to opportunities that would not otherwise be available to me. My work as a research assistant on Hawai'i Island is an example of one of these opportunities. This thesis would not exist had I not been privileged to win a grant from the UVM Environmental Studies department to support my research assistantship. The effects of my engagement in this research should not be overlooked. These include the environmental impacts caused by my air travel to Hawai'i Island and my resource consumption on island. Fieldwork for this project risked being overly socially extractive (Dowling 2016) at a time when research on Cultural Ecosystem Services (CES) and impacts of climate change was already being done by multiple actors on Hawai'i Island. To mitigate this, partnerships with the Office of Hawaiian Affairs (OHA) and National Oceanic and Atmospheric Administration (NOAA) were established to ensure our field work considered the research needs of these organizations and aimed for mutually useful research outcomes.

My own positionality inherently limits my ability to comprehend the multi-storied and layered attachments to shorelines and the experiences that participants generously shared with me, and that I discuss in this work. Considering this positionality while conducting fieldwork led me to engage in a self-reflective process and to be conscious of the ways in which my own identity was inserted in interviews and conversations. This iterative processes of critically reflecting and adjusting behaviors and questions accordingly led me to interact more thoughtfully with participants than I otherwise would have throughout the data collection process.

RESEARCH METHODS

Interview Methods

During the summer of 2018, I worked as a research assistant to Alison Adams, a doctoral candidate in the Rubenstein School of Natural Resources and the Gund Institute at the University of Vermont. Together we conducted twenty-four one to three-hour interviews with residents of Hawai'i Island. The focus of Adams' research is to apply a modified ecosystems services framework to examine the impacts of reef and coastal change on the intangible relationships between people and coral reefs on the island. A secondary goal of the research project was to draw data from this work for my undergraduate thesis. The focus for my research emerged from these interviews as I noticed that access to shorelines was a contentious issue.

Information from key contacts and informal conversations with local residents were used to identify research participants and helped to facilitate initial contact. Our sampling method focused on purposefully identifying individuals who held a range of relationships with Hawai'i Island reefs and coastal ecosystems. These relationships included but were not limited to cultural, recreational, subsistence, activist, and artistic ones. Types of connections to shorelines experienced by individuals overlap heavily, so participants typically expressed holding more than one of these relationships at a time. All interview participants had lived on Hawai'i Island for at least five years at the time of interviews. Interviews employed a semi-structured, IRB-approved protocol and were audio-recorded. Interview methods were developed by Adams and drew on the participatory mapping and cultural ecosystem services interview protocol developed by Dr. Rachelle Gould and colleagues for previous research on relationships with forests in South Kona on Hawai'i Island (Gould et al. 2014, Gould et al. 2015). As one of my committee

members and as Adams' dissertation advisor, the longstanding relationships with stakeholders established by Dr. Gould during her research on Hawai'i Island played an important formative role in establishing community connections and researcher credibility during field work.

Demographic information was collected at the beginning of each long-form semi-structured interview, with participants asked to self-define their racial and ethnic identity. Participants were then asked to describe changes or happenings they had observed on reefs and coastal ecosystems around the island that were important to them. Subsequent questions focused primarily on the various relationships between the participant and the reefs and coasts, and the ways those were or were not affected by the changes they had noticed on the reefs and coasts. Interviewees participated in an activity wherein they chose from a selection of cards listing potential place relationships. Adams developed these cards from an array of frameworks, including the Millennium Ecosystem Assessment Cultural Ecosystem Services (CES) framework (2005), other additional CES identified separately in a Hawaiian context by Gould & Lincoln (2017) and Pua'ala Pascua et al. (2017), and Chan et al.'s (2012) relational values work. Cards chosen by participants were then used as speaking prompts throughout the interview, and elicited detailed discussion of attachments, experiences and memories associated with coastal ecosystems and shorelines. Card prompts with potential place relationships and corresponding sources used to develop them are shown in Figure 1.

Sources	Card Prompt
Millennium Ecosystem Assessment 2005	I/we derive satisfaction or meaning from visual characteristics or beauty of the reefs or coast
Millennium Ecosystem Assessment 2005	The reefs or coast are important to me/us because of past events or stories
Millennium Ecosystem Assessment 2005	There are reefs or coastal areas that inspire or remind me/us to be aware of forces or entities larger than myself/ourselves
Millennium Ecosystem Assessment 2005	There are reefs or coastal areas that are important to me/us because they are sacred
Millennium Ecosystem Assessment 2005	There are reefs or coastal areas that are important to me/us for ceremonial reasons
Millennium Ecosystem Assessment 2005	Places in the reefs or coasts provide me/us with ideas or images that inspire art or creative expression
Millennium Ecosystem Assessment 2005	Reefs or coasts around the island play a role in strengthening ties in my family and/or my community/ies
Millennium Ecosystem Assessment 2005	There are reefs or coastal areas that contribute to my/our sense of belonging here
Chan et al. 2012	I/we feel that my/our sense of self is connected to the reefs or coast
Chan et al. 2012	I/we value the reefs or coasts, or parts of them, simply because they exist, separate from any other importance it may have to me/us
Chan et al. 2012	The reefs or coasts are important to me because of what it means for future generations
Chan et al. 2012	The reefs or coasts teach me/us about ecology and science in general
Chan et al. 2016	Caring for the reefs or coast (specific parts or more generally) fulfills me and/or is the right thing to do
Pascua et al. 2017	The reefs or coasts contribute to my/our mental well-being
Gould & Lincoln 2017	The reefs or coasts help me/us think of how to approach problems or develop solutions to those problems
Gould & Lincoln 2017	I/we learn important life lessons from the reefs or coasts
Gould & Lincoln 2017	Spending time in or thinking about the reefs or coasts helps me/us put or keep things in perspective

Figure 1: Card speaking prompts and sources.

Participants were occasionally asked to record their responses visually using a map of Hawai‘i Island. This mapped data is not used here, but the map often served as an important additional prompt for discussion which served to bring up new insights about participant experiences with shorelines. The final portion of the interview explored the ways that changes or happenings on reefs and coastal ecosystems around the island affect the participants’ previously-described relationships with the reefs and coasts. Although we did not include an interview question about shoreline access, we asked follow-up questions as appropriate when participants independently mentioned the topic.

Of the twenty four interviews we conducted, I chose ten to use for my thesis, selecting for an equal distribution of gender identity and of self-identification as Native Hawaiian. These ten

participants are referred to with pseudonyms throughout this thesis. Figure 2 shows the identity characteristics of the ten participant interviews chosen for analysis. Adams and I also collected more than 300 surveys from anonymous beach-goers on Hawai'i Island to evaluate a wider range of relationships to coastal environments and coral reef ecosystems. Although I have not included any of this survey data or all 24 interviews in this analysis, both were formative in the development of this project and have contributed to my understanding of access dynamics. The survey process in particular allowed me to interact with a wide variety of shoreline users, to observe their dynamic interactions with the environment and with one another, and to interrogate my own positionality as an active participant in shoreline spaces

<i>Characteristic</i>	<i>Interview Participants</i>
<i>Number of Participants</i>	10 (including one couple)
<i>Gender Identity</i>	5 men 6 women
<i>Age</i>	36 – 79 years old
<i>Racial and Ethnic Identity</i>	5 Native Hawaiian 6 non-Native Hawaiians
<i>Time Spent on Hawai'i Island</i>	1 newcomer (5 years) 7 long time residents (13-26 years) 3 life long residents
<i>Relationship to Shoreline</i>	4 work as activists to protect cultural relationships to land 2 work in the tourism industry 2 do voluntary environmental activist work 1 is a cultural practitioner 1 works as a marine science educator 1 has artistic connection to shoreline (photographer)

Figure 2: Participant characteristics.

Interview Analysis Methods

Interviews were transcribed, and then coded using NVivo. Initial coding was done using three interviews to identify categorical themes, with an emphasis on emergent codes. Code categories determined before beginning this process were limited to activities done in shoreline spaces such as subsistence food gathering, recreation, and ceremony and mentions of interpersonal conflict. Further categories were developed and refined to include a multitude of place attachments, perceptions and relationships. After this initial exploration, analysis of all interviews was undertaken during which codes were further refined and developed iteratively, and connections between codes were identified (Cope & Kurtz 2016). Pen and paper coding, categorical gridding and code consolidation were all used to develop the codebook through the processes of both manifest and latent content analysis (Dunn 2016). My final broad code categories included participant engagement with and understanding of shorelines, challenges to accessing benefits derived from shoreline spaces and judgements of other people's relationships to place.

It was difficult to choose what codes to prioritize presenting in this work, because they are all so fascinating. Figure 3 is a condensed version of my codebook, showing descriptions for the broad code categories and descending sub-codes that I drew from most directly in writing up my results. On the right of Figure 3, counts of the number of participants who discussed each code are given. My results section synthesizes data from all of the codes and sub-codes shown in Figure 3 in three sections. My results section on blue-space benefits (Results Section 2) draws from codes on participant relationships to place. My results section on processes that limit access to blue space benefits (Results Section 3) synthesizes codes for access challenges and judgements of how other people behave along shorelines. My last results section on mechanisms

used by participants to maintain access to the benefits they value along shorelines (Results Section 4) uses codes detailing action taken by participants to assert their relationship to shorelines.

Code Name	Description	Number Participants
Relationship to Place	The shoreline as a place of.... for the interviewee	10
Food	References subsistence activities or other interactions w/ shoreline as a food source	5
Healing	Use of shoreline for healing/ well being purposes	8
Ceremonial	Use of shoreline for traditional/ ceremonial activities	3
Cultural Values	Interviewee describes their cultural values/ beliefs	5
Genealogy	Interviewee makes specific reference to their genealogy	4
Tradition or Heritage	Interviewee discusses the role that shoreline places play in their heritage	5
Connection to Nature	Experiences of a personal connection to nature	6
Responsibility or Care	Importance of caring for the shoreline, coast, reef, or place in general.	9
Sense of Self	Relationship to shoreline as a place influences how participant thinks about their identity.	6
Challenges to Access	Affect individual abilities to access relationships to shoreline	10
Conflict	Points of inter-personal conflict referenced by interviewee.	8
Nature Challenge	Challenges to access caused by biological conditions of reef/ecosystem	9
Changed Food Resources	Interviewee talks about how there are fewer numbers of resources along shorelines	5
Water Quality	Interviewee talks about how pollution, run off, or sedimentation affects shoreline access	6
Social Challenge	Social context/ processes that prevent or affects ability to access shoreline	10
Built Environment	Infrastructure created by humans impacts ability to access shoreline relationships	4
Colonization	Reference to Hawai'i's colonization by the United States	3
Crowds	Presence of crowds limits ability to access shoreline relationships/ resources	7
Judgements from Others	Interviewee discusses how judgements from other people about their ability to access the shoreline	2
Judgements about Other People's Relationship to Place	Appraisal of behaviours, attitudes, and ideas about shoreline and place more generally held and practiced by those other than participant	10
Careful	Attitudes, behaviours, and ideas about place that characterize "care" for participant	2
Care-less	Attitudes, behaviours, and ideas about place that characterize lack of "care" for participant	10
Action	Action taken by individual to assert their relationship to shoreline	10
Helpless-ness	Interviewee feels like nothing is enough to solve biophysical or social challenges to shoreline accessibility, because the problems are too big	5
Ideas for Action	Ideas about what could be done on a broad scale to improve shoreline access	6
Personal	Action taken personally by interviewee with goal of improving conditions on shoreline in some way - socially, ecologically, politically, etc.	10
Caring for Land	Interviewee discusses regular activities they do to "clean up" shoreline areas or care for coastal ecosystems, such as removing invasive plants	4
Data Collection	Practice of documenting coastal conditions	1
Education	Description of action to educate other people about the coast, shoreline, or reef	7
Legal Action	Use of policies to contest coastal development or to increase access to benefits	2
Secret-Keeping	Action taken to keep things secret or to make them seem undesirable to protect shoreline	2

Figure 3: A condensed version of the codebook I created to analyze interview transcripts. Counts of the number of interview transcripts that reference each code and sub-code are shown on the right.

Throughout the coding process, I experienced discomfort about reducing the words of my interview participants to “data,” and found myself interrogating my subjective categorization of interview contents. However, coding allowed me to organize an otherwise overwhelmingly large quantity of highly-detailed and arresting information, and to identify emergent links and relationships in order to uncover the points and concepts in interview transcripts that felt most urgent to discuss. Research mentor Alison Adams provided invaluable feedback on codebook development and identification of emergent themes. Opportunities to discuss varying and shared impressions and insights from work in Hawai‘i with Alison has deepened and strengthened the analysis and discussion I present here.

Spatial Analysis Methods

Choropleth maps showing population of different racial groups were overlaid with physical locations of county-designated shoreline access right-of-ways in order to examine how demographic realities interact with the spatial distribution of access. Data from the 2016 American Community Survey (ACS) five-year estimates, organized by census block group, were used to compare racial group distribution around Hawai‘i Island with the locations of county-designated public shoreline access points. The ACS’s five-year estimates, which use data gathered annually from 2012-2016, were used to provide the most accurate population statistics rather than the most current. Regional maps of officially designated shoreline access points, or public right-of-way locations, were downloaded from the Hawai‘i County informational website. These were geocoded using ArcGIS onto a map of Hawai‘i island to provide the most accurate depiction of access point locations possible. Resulting data tables generated in A were analyzed using the Statistics Package for the Social Sciences (SPSS) software and summary statistics were

generated using ArcGIS. A series of graphs depicting demographic distribution only for census block groups that contain shoreline access points was created.

RESULTS

As discussed in the previous section, a combination of unique ecological characteristics and multiple cultural and socio-economic understandings contribute to the liminality of shorelines as places (Cloke & Jones 2001, Leyshorn 2018). On Hawai‘i Island, multiple meanings of shorelines as places and understandings of what activities are appropriate within them are squeezed below the high water mark into areas deemed “public.” As a result, the types of blue-space benefits accessed along public shorelines vary widely between users. The ability of individuals to access these benefits is embedded in underlying political-economic and socio-historic contexts, and the co-presence of so many different benefit flows can result in social conflicts and judgements.

Sections of this chapter are numbered to help organize such a broad array of results. In Section One of this chapter, I map access distribution across Hawai‘i Island using quantitative spatial analysis. In Section Two, I identify three broad inter-related categories of blue-space benefits that emerged as themes during the interview coding process. Section Three explores processes that control the ability of participants to access the shoreline benefits they value. Finally, in Section Four I describe mechanisms used by various research participants to maintain their access to blue-space benefits. Unless otherwise noted, themes discussed in each of the qualitative results sections were identified in at least half of participant interviews.

1: Distribution of Access Based on Shoreline Access Point Locations and Demographic Data

Topography and climate have influenced the development of the built environment and the locations of shoreline access points on Hawai‘i Island. The top map of Figure 4 shows Hawai‘i Island’s location among the main Hawaiian islands (Nihau is not shown). As the geologically youngest of the islands in the Hawaiian chain, Hawai‘i Island continues to be shaped and re-shaped by volcanic eruption events that have been ongoing for thousands of year, resulting in a variable landscape. The lower map shown on Figure 4 is useful for contextualizing the variety of shoreline types that exist on the island and the desirability of different regions for human use. In some cases, volcanic flows have resulted in the creation of sharp cliffs along the island’s coastline. Kilauea, Hawai‘i island’s continuously active volcano, is located on the lower, southeastern half of the island. Figure 4 shows that the southeastern coast near the volcano is made up of mostly sheer cliff face, with few physically accessible beaches.

Figure 4 also depicts average annual rainfall on Hawai‘i Island from 1971-2000, using data produced by Oregon State University’s Parameter-elevation Regressions on Independent Slopes Model (PRISM) Climate group. This data shows that the Western side of the island is consistently dryer than the Southern side of the island. Major roads are shown in purple. Approximate locations of major resorts, golf courses, and country clubs, often built in close proximity to one another, are shown using the black building symbol. Data on the location of amenities was gathered from maps shared on a popular Hawai‘i Island travel website (https://travel-hawaii.com/big_island) but is not a comprehensive representation of all resorts on the island. Of the sixty-one upscale developments mapped, fifty-two of them are located on the dryer Western coast of the island, where beaches are also more physically accessible.

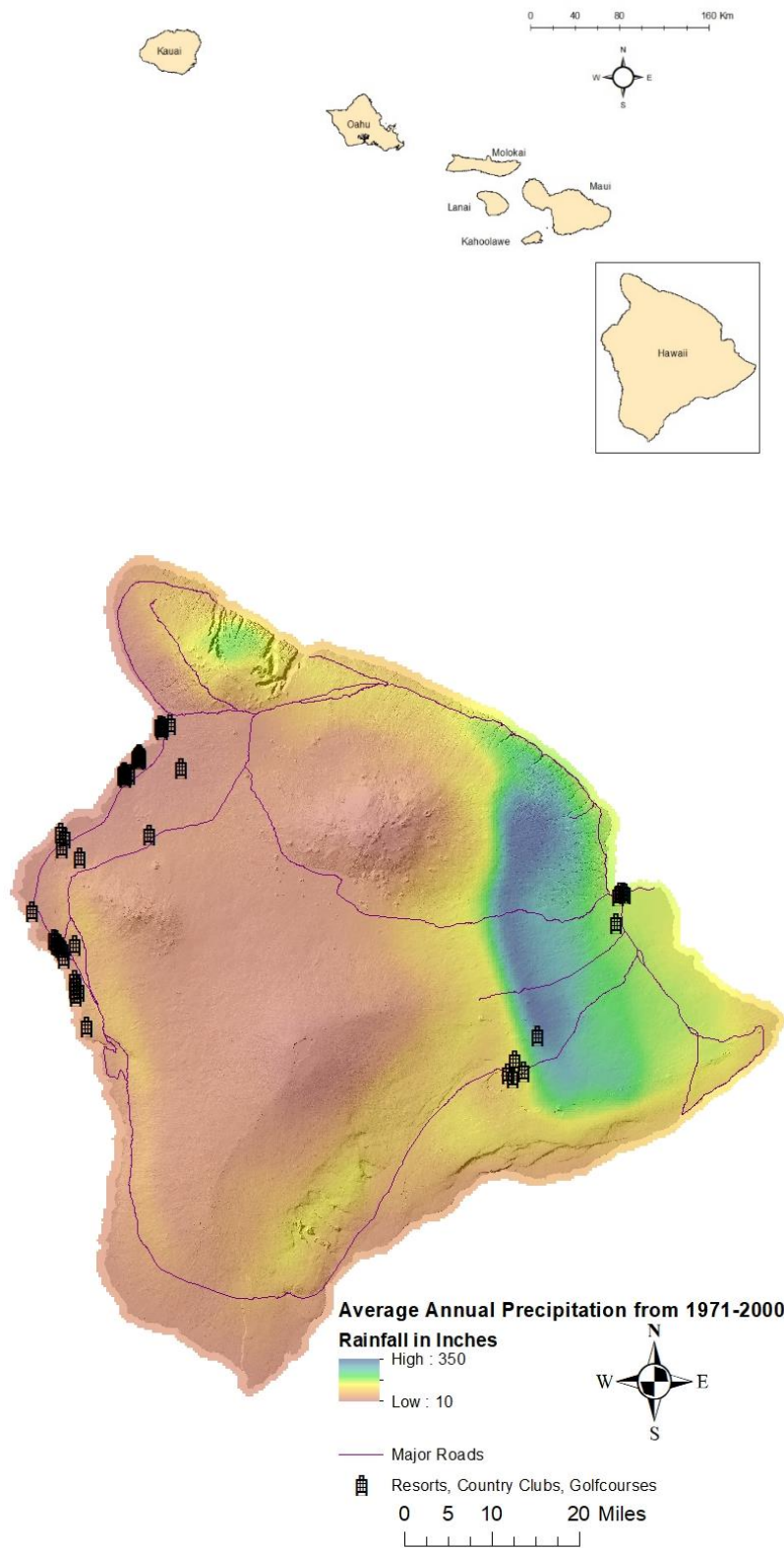


Figure 4: Top map shows the location of Hawai‘i Island in the Hawaiian Island chain. Bottom map shows topography and 30-year average annual rainfall on Hawai‘i Island.

Figure 4 continued: *Approximate locations of resorts, golf courses, and country clubs are depicted by the building symbol. Major roads are shown in purple.*

Demographic trends on Hawai‘i Island have been produced by a postcolonial Eurowestern political-economy that has historically favored White settlers (Matsuoka & McGregor 1994). Keeping in mind the influence of the island’s physical features shown in Figure 4, examining the locations of public shoreline access right-of-ways in relation to racial population distribution provides interesting insights about the spatial realities of public shoreline access. Such an examination helps to contextualize the micro-dynamics of shoreline access presented in later results sections within broader social realities on Hawai‘i Island. According to the 2016 ACS five-year estimates, the total population on Hawai‘i Island was about 193,680 people from 2012 and 2016. Of these 64,255 individuals identified as White (33%), while the grouped BIPOC category includes 74,861 people total (39%). There were 66,473 people who identified as Native Hawaiian alone or in combination with one or more races (34%), and 26,517 who identified as Native Hawaiian only (14%). The overall total of these counts combined equals more than the total Island population, because individuals who identify as only Native Hawaiian have been included in two categories.

In Figure 5, demographic distribution reported by the 2016 ACS five-year estimate is depicted as a percentage of the total population present in census block groups to highlight population differences between racial groups. It should be noted that color scales used to portray population percentages are relative to each individual map. Categories of population percentages for each map were selected based on natural breaks in the data. Demographic distribution of White people is shown on the top left of Figure 5, and of Black Indigenous People of Color (BIPOC) not including Native Hawaiians on the top right. The BIPOC group includes African

Americans, American Indians, Alaska Natives, Asians, and an “other” category. Hispanics are not included in this category, because the ACS considers race separately from Hispanic origin. The map on the bottom left of Figure 5 shows population distribution of those who identified as Native Hawaiian alone *or* in combination with one or more races. This category is necessary because individuals who identify as mixed-race Native Hawaiian, rather than Native Hawaiian only, are not included in the Native Hawaiian population statistics. The bottom right map shows the population of those who identify only as Native Hawaiian.

There are 145 total shoreline access points around the island, according to maps provided by the Hawai‘i County website. Out of 106 total block groups on Hawai‘i Island, 25 of them contain shoreline access points. Figure 5 shows that access right-of-ways are clustered on the Western side of the Island, especially around the Kailua-Kona region, an area that receives substantially more visitors than other parts of the island and is home to a large number of resorts and hotels. By contrast, as shown in Figure 4, the shoreline on the Southeastern edge of the island is composed primarily of sheer cliffs. This contributes to the low number of access points in the region.

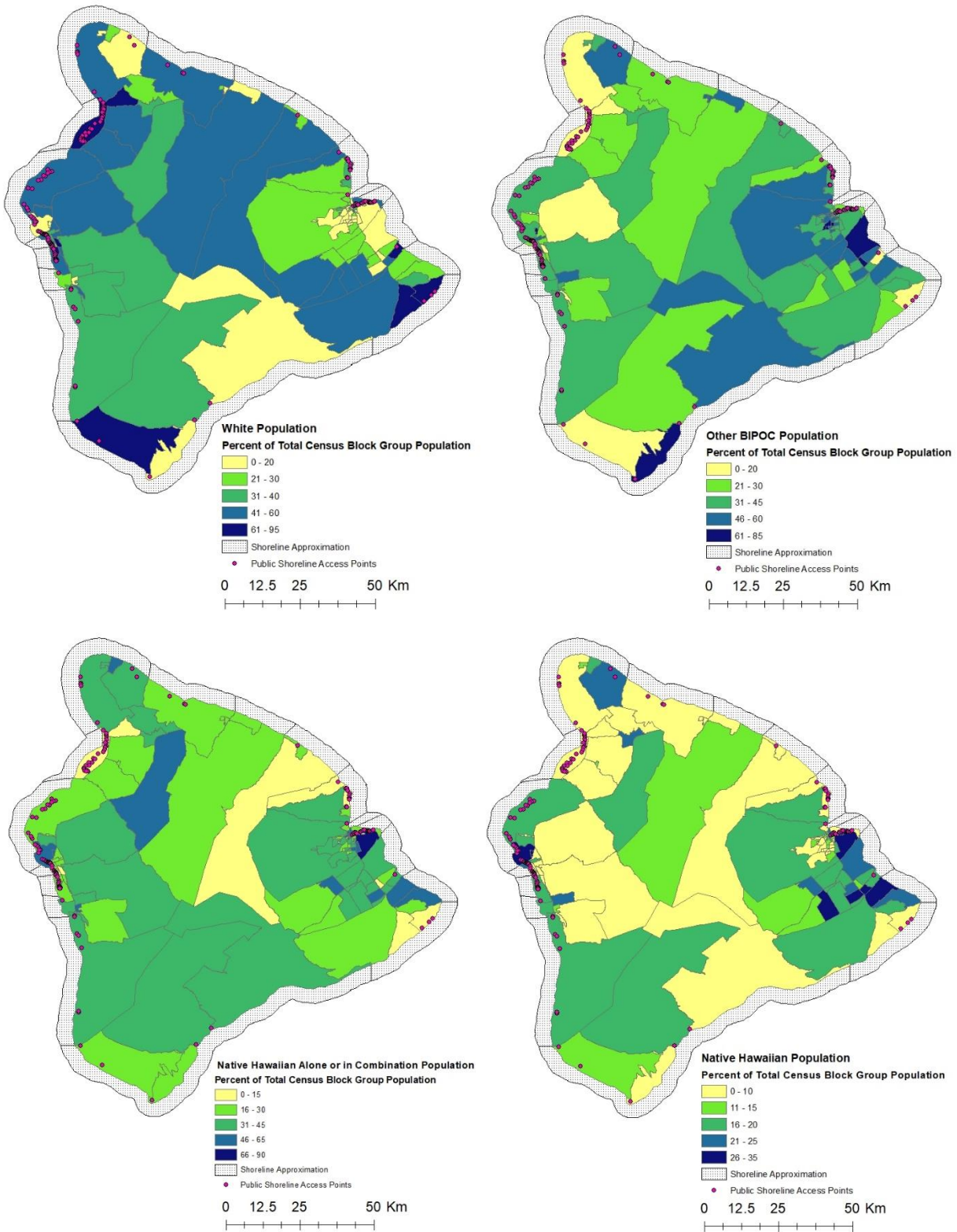


Figure 5: On the top left, population of White people in census block groups is shown as a percentage of total block group population. Shoreline access point locations are shown in pink. The same classification system is used to show Black Indigenous People of Color (BIPOC)

Figure 5 continued: not including Native Hawaiians (top right), Native Hawaiian mixed-race population (bottom left), and the population of those who identify as only Native Hawaiian (bottom right). Note that color scales are relative to each individual map.

Figure 6 shows the relationship between the percent of total block group population made up by different racial demographics and the number of shoreline access points within a given block group. Number of shoreline access points within block groups increases with lower population percentages of Native Hawaiians and other BIPOC, and with higher population percentages of White people. There is a significant linear relationship between percent of total population made up by White people and number of access points when analyzed at a significance level of 0.1 ($p = 0.090$). The line of best fit depicting this linear relationship is shown on the upper left graph in Figure 6. However, this relationship is weak and only able to explain eight percent of variability in the number of shoreline access points present in census block groups. There is no significant linear relationship between other BIPOC population ($p = .153$), Native Hawaiian population alone or in combination with one or more races ($p = .317$), and Native Hawaiian only population ($p = .541$) and number of access points. Graphs in Figure 6 show high levels of variability, with many outliers present. It is likely that other variables, including climate and landscape elevation, also contribute to variability in number of shoreline access points in block groups.

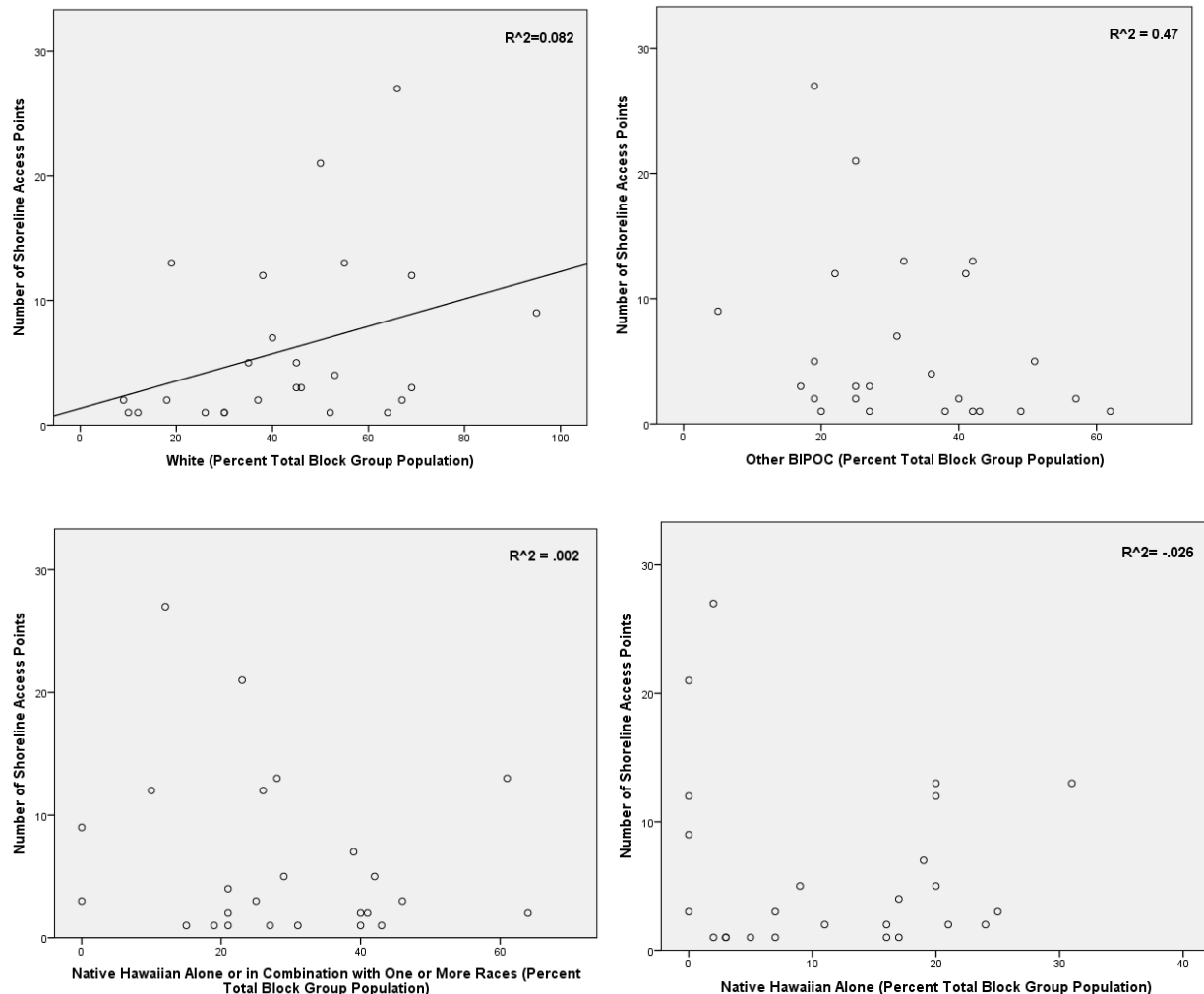


Figure 6: Percent of total block group population made up by a racial group is shown on the x axis, while number of access points within a given block groups is shown on the y axis. Adjusted R^2 values are also shown to indicate what percent of the shoreline access points can be explained by racial population percentage.

The highest number of shoreline access points within one block group is 27. This block group contains 703 Whites, 207 BIPOC, 113 people who identify as mixed-race Native Hawaiian, and 16 people who identify as Native Hawaiian only. Of block groups that contain access points, the one with the largest total population of those who identify as only Native Hawaiian or as mixed-race Native Hawaiian, at 1,650 individuals, has only 2 access points. However, this block group is located on the Southeastern tip of the island where shoreline is made up of cliff face, so racial dynamics alone cannot explain why there are so few access

points. Still, it is interesting to note that the block group with the overall highest total populations of those who identify as Native Hawaiian alone or in combination with one or more races, at 2,026 individuals, is located towards the interior of the island and therefore contains no public shoreline access points. On the other hand, the block group with the highest total White population, at 2,367 individuals, is located on the Western edge of the Island and contains 13 shoreline access points.

2: Blue Space Benefits Derived from Hawai'i Island Shorelines

2.A: Access to Heritage and Origins

There's something really primordial about [the ocean] [...] it just, it feels like it resonates with some part of me or part of my genetic code that's very very old [...] because that's where life came from [...] it feels like some part of myself that's very deep.

This quote is from an interview with Kim, a White participant, who described how she views the ocean as a life-giving place, one that she associates with her own origins and with the origins of humankind in general. Participants across racial and ethnic backgrounds felt that having access to shorelines allowed them to connect with their sense of self. All participants discussed spending time along shorelines as beneficial for their mental health. The vastness and variety of lifeforms contained in the ocean and glimpsed along shorelines, and the physical power of the ocean itself as it crashes against the coast, were described as elements that lend participants perspective on their individual place in the world.

For several Native Hawaiian participants, spending time along shorelines allowed them to access genealogical ties that link them explicitly to coasts and coral reef ecosystems, as expressed in origin chants like the Kumolipo (Liliuokalani 1895). Keoni, a Native Hawaiian

participant and life-long resident of Hawai‘i Island, described how he views and interfaces with life forms in shoreline areas, saying:

I kind of almost look at the reefs and the-- and the ocean as an extension of our family. So it's like, having that deep relationship to our -- the reef, to the fish, to everything in that area as an extension of us, and having, like, kinship.

Native Hawaiian participants explained that having access to spaces that link them to their other-than-human and human ancestors is critical for the perpetuation of cultural knowledge and experiences. Olivia, a life-long resident of the island who is of Japanese and European descent, explained how while growing up she was taught to spend time in coastal areas in order to take care of her mental health:

We're trained that way [...] my mother did it, my grandparents did it. My grandpa went fishing everyday [...] and sometimes he caught nothing, so I suspect he was just going to you know, put his pole in the water [...] that's how he managed his stress.

Olivia's use of shorelines to manage her stress is a practice inherited from her family members before her, who used the same beaches to maintain their own mental health. The ability of participants to enact relationships to shorelines also experienced by those who came before them was seen by participants as beneficial for their individual well being, and for the well being of their communities more generally.

Knowledge of place names plays an important role in the enaction of inherited relationships to shorelines. Several Native Hawaiian participants explained that Hawaiian names for places and landmarks were given deliberately, often meant to describe specific physical and/or spiritual characteristics or to call up stories associated with a place. Kalani, a longtime

Native Hawaiian resident of Hawai‘i Island and respected kūpuna, or elder, explained:

“Hawaiians when they names places there was a reason, a definition for every word.” Keoni expressed how it feels to know the names of specific features along shorelines in his hometown of Miloli‘i:

We're from here, we're connected to this place. Twenty generations back, and I feel like our future's gonna be here twenty-- 'cause we've just, we've still stayed true to our place. So, I just think, I realize now, more than ever, how important that is to me. [...] And then, and then, like--yeah--we go and we have names for these places, these landmarks where we go and fish, that is like, so sacred, you know? When I go with my dad, or when I go with my friends or my brothers I-- it's just like, we know the names, we know the places, we know what they're known for, what the fishing is like. So it's just like, truly... just truly makes you feel so good inside. That you can do that.

For Keoni, knowing the names of landmarks and fishing sites not only makes him “feel so good inside,” it also connects him to his ancestors and to Hawaiians yet to come. His commitment of “staying true” to place by speaking and sharing traditional names ensures that future generations will also have access to Native Hawaiian ways of knowing and understanding shorelines. Access to traditionally named places and to the place names themselves not only allows for a deeper knowledge of coastal environments, but also connects shorelines through multiple temporalities by linking them to the ancestors who originally named them, and to generations to come who will continue to use the names in the future.

2.B: Access to Subsistence Resources

Customary subsistence use of shorelines on Hawai‘i Island has been ongoing for hundreds of years, and has created strong ocean and shoreline associations. One participant told

us that his sense of self has been influenced by his understanding that “the ocean is [his] icebox,” a place where he can access food. Themes that emerged during interview coding showed that the performance of activities like fishing and gathering has created strong associations and unique understandings of shoreline ecosystems. On Hawai‘i Island, shorelines allow for the existence of taskscapes (Cloke & Jones 2001) that include harvesting activities such as fishing, gathering seaweed and shellfish, and collecting salt. These taskscapes contribute to the production of shorelines as places. This production occurs in the minds of subsistence users as a result of the memories, lived experiences, and emotions they associate with their shoreline tasks, and physically through the effects of tasks on ecological communities and landscape features.

Keoni explained to us how his village has been both physically sustained and culturally constructed for generations through a combination of fishing practices and environmental characteristics:

The literal name of Miloli‘i is small milo, the plant. So we're known for our sennit, which is our cordage. So our fishing was so good, but we also had really good fishing lines. So they would make the braids, and they would--that's how they would fish for the fish. So that's one name, and then the other would be like, the current, the tides, there's the way that the water currents come in. So, the li‘i is the small tides. And that's, you know, just--then that means the people over here, that's what they did. So that has been, like, I'll be always connected to this place, our family will always be connected.

The maintenance of traditional subsistence practices is crucial to sustaining Miloli‘i's community well being and carrying on cultural heritage. Keoni told us, “it's critical for us to carry on those practices, and fishing is what we really connect to. We don't speak the language as much, we don't do hula [...] but fishing is still what's strong for our families.” Keoni described

how the communal aspect of fishing and gathering activities and the common practice of sharing harvests creates an important environment of learning and allows kūpuna to pass on their knowledge to younger generations.

2.C: Access to Spiritual Connection

Shorelines are also locations where communication with akua (gods) and ‘aumākua (family/ personal/ ancestral gods) occurs. ‘Aumākua are metaphysical beings that can be physically manifested through features of place, like rocks, or through specific animals. Leia, a Native Hawaiian participant and self-described cultural practitioner, described how looking to those who came before her provides her with guidance for how to interact with ‘āina and with shoreline ecosystems more specifically while keeping future generations in mind, saying “We’re just here for a very short amount of time. We have to look at who was here before us. Including the akua and the ‘aumākua. And it goes on. [...] It’s gonna – our imprint affects the future.”

Here, Keoni describes how fishing can be both a spiritual and a subsistence activity:

Yeah, so a lot of times, like when we do go out and fish, what we do is that we always thank our spiritual side, whatever we believe in, because, not everyone catch fish all the time, so we always give back our first catch. Especially when we do ‘ōpelu fishing, it's like, very, very, like, you're just talking to your ‘ohana when you get out there. You say stuff, and you do stuff... I grew up and see my dad do that kind of thing, then it was like, wow, we catch plenty fish. So we obviously feel that we catch because we have a deep relationship to our spiritual kūpuna, our ‘aumākua, the ones that protect us.

Keoni’s description shows how intangible blue-space benefits and material aspects of ecosystems are intertwined along shorelines, and how different benefit categories are inherently connected. While catching ‘ōpelu, a type of fish, Keoni and his family engage in ritual that

connects them to past ‘ohana (family, ancestors) and their spiritual kūpuna, and also ensures that they will continue to benefit from good harvests. Physical nourishment is bound up intrinsically with spiritual nourishment, so that the ‘ōpelu is not just a fish, it is also a being that connects Keoni to his ancestors and spritual guides.

3: Processes Limiting Participant Abilities to Access Benefits

Interview analysis and code synthesis allowed me to indentify three main factors that limit the ability of participants to access the blue-space benefits that are important to them along shorelines. These limiting factors are the tourism industry, coastal development, and changing natural resources. Their impact on the ability of participants to access benefits is related to how shorelines are experienced and perceived by individuals who hold various socio-economic and cultural identities; access to blue-space benefits is controlled in different ways based on different understandings of blue spaces. Figure 7 uses a selection of quotes to exemplify the ways that processes controlling access to blue-space benefits are experienced by my research participants.

Blue Space Benefits	Processes Limiting Access			
	Access to Heritage	The Tourism Industry	Coastal Development	Changing Natural Resources
		“...they lose that part of themselves because a lot of people want to go in and enjoy that place too [...] And it's not-- it's not because they don't want, it's just that way is how it ended up being, because just the impacts from the tourist industry has been really a huge [...] the ‘ohana-- families--cannot go and be in the place where they used to be.” - Keoni, life-long Native Hawaiian resident, age 36	“We definitely have seen the impact that development has had on local beaches, both the ecological [...]And like you were talking about earlier, you know the culture. Of the people, and the population, and the dynamic that is on the beach [...] you know like for our kids, when we’re exploring tidepools [...] If you wanna lift up an animal and look at it, fine, check it out, put it back where you found it. And occasionally we'll be at the beach with kids not being supervised, killing animals, and disrespecting [...]And to me it's those little things that just impact the big picture.” -Liza, long-time White resident, Age 42	“...if they're [limu] done right, they'll taste the same. But the sense I get is, why are we buying this?! Right? And paying ex - extreme amount of money for this [...] when I think we're forced to buy things that are part of us, and were part of what we were living on as, as kids [...] it's even more of an impact because it has to be added to our cost of living, right?” -lolana, life-long Native Hawaiian resident, Age 67
		Access to Subsistence Resources	“...We're getting a lot more volume of visitors. Yeah? And that has an effect on everything [...] And they, they are laying like sea lions, I mean it's amazing, it's like tight to each other. And I can hardly step over them to get to my fishing spot, so I don't bother. I'll either go further into the national park, or away from people, so.” – Olivia, life-long Japanese-European resident, age 40	“The salt pans are no longer there in the same way [...] Now down here [...] they still have salt pans, and they’re protecting it, and it’s different because the access is different, right? The shorelines access that’s behind gated community. It’s part of the hotel. You know, it’s the Four Seasons. So, it’s different. It’s protected more. But up here where it’s more public access, there isn’t a lot of salt pans up there [...]. It’s no longer like that.” – Leia, long-time Native Hawaiian resident, Age 58
Access to Spiritual Connection	“When you go to the beach [...] there's a heiau (temple) right there that every day you see tourists climbing all over [...] [that] was a sacrificial heiau. Thousands of Hawaiians lost their lives out of that thing [...] There were very significant meanings and purposes to every part of the coastline. “ - Liza, long-time White resident, Age 42	But then there's beaches where, I don't even want to go anymore. Because I don't wanna ruin my vision of how it used to be. To how it is now [...] It's hard, like, there's areas where we used to go, where I refused, before, I refused to go and work <i>[on construction]</i> , because I don't feel that it should have been there [...] Spiritually [...] But, I mean, being in the water, people cannot tell if you're crying, because you're already wet.” - Ahe, long-time Native Hawaiian resident, Age 54	“All those connections. The sense of place, ceremonies, you know teaching us about important life lessons. You know, if we don't have fish out there, if our reefs are dying, we cannot share that stories that our kūpuna shared with us, our parents shared with us. It's just that we start to get more disconnected, and then we live here but we don't really live here, yeah?” – Keoni, life-long Native Hawaiian resident, age 36	

Figure 7: Chart inspired by Gould et al. 2014. Broad categories identified as processes that control access and quotes demonstrating their impact on the ability of participants to access blue space benefits are shown.

3.A: The Tourism Industry

The Search for “Paradise”

The tourist population’s access of shorelines on Hawai‘i Island controls the abilities of local users to maintain their own access to benefits. In particular, crowds, sunscreen, and commercial tour boat companies emerged as key actors that affected the ability of research participants to receive blue-space benefits from shorelines. Research participants across racial and ethnic backgrounds expressed that they prefer to spend time in less crowded coastal areas, because they viewed these areas as more peaceful. Jessica, a long-time White resident of Hawai‘i Island, explained how on isolated beaches, she feels “just... a peace [...] I don't wanna be in a crowded place. Just going-- it's very soothing for me.” Participants of all backgrounds commonly associated the presence of crowds and tourists with degraded natural resources as a result of exploitive or ignorant tourist behaviors. Beyond having an affect on the mental health of research participants, crowded beaches also had limited the ability of participants to access benefits derived from subsistence activities and resources. Below, Iolana explains how subsistence users like herself have been forced to alter their behavior to accommodate suddenly crowded beaches:

What the tourists are looking for is what we cherish. Going out away from everything. Going to these hideaway, you know, these out of the way places, where, those were special gathering places. And now, they're being bombarded, right? Our shorelines, I mean, we're fishing in -- what I think, we have to get keys to go down in an area, in an isolated area, and then here you see these tour boats coming. And people are just all over the place. And the access to our shorelines, and the amount of people that make money off of it is really disgusting to me. And, not only do when they come out in droves, guess what? They have all this shit on their body, right? [...] So now they're bringing those into

the pristine areas, where it has a huge effect, because these things are like, virgin, right?
And now all these, whatever chemicals and stuff.

The presence of crowds of tourists along shoreline areas that used to be important subsistence harvest sites has not only forced Iolana to go elsewhere to gather food, but has also degraded the resources in otherwise “pristine” areas for years to come. The sunscreen that many tourists apply to their bodies, which has been found to impact the ability of corals to form their calcium carbonate skeletons (Wood 2018), was frequently cited as a factor that negatively impacted shoreline ecosystems. Participant Olivia, a life-long resident of Hawai‘i Island of Japanese and European descent, explained how crowds have physically blocked her ability to access the fishing grounds on the bay that she and her family have long cared for, forcing her to go elsewhere. She expressed her frustration with visitors to Hawai‘i Island and her understanding of their relationships to natural resources, saying:

Where's your garden? Where are your relationships? Are you tending to - do you know your water? And for the vast majority of people that are here now, that's the shift, that's the biggest change, is that many of them just don't have it. They don't know, like I can say exactly where my grandparents were born. I can say where my mother was born. I can say where we've lived [...] For, I'm fourth generation. My children are fifth generation, so.

Olivia perceives that the values systems enacted by the crowds who block access to her family’s fishing grounds run counter to her own. She is generationally connected to a specific shoreline location and has good reason to “tend to the water” there in order to maintain healthy populations of subsistence species for herself and her family. Contrastingly, the tourists who lounge along this shoreline have no long-term stake in the health of the coastal ecosystem. According to

Olivia, this means that crowds of tourists affect her ability to benefit from shoreline resources with “their feet, their sunscreen, their lack of respect for anything living.” It is not only the physical presence of crowds of tourists that negatively affects the ability of Olivia to benefit from access to shoreline resources, but also the value systems enacted by tourists that fail to respect shoreline ecosystems.

Tourist Consumption of Experiences

Participants across backgrounds expressed dissatisfaction with adventure activities and experiences commonly purchased by tourists, like snorkel trips that include swimming with manta rays or dolphins. Participants took issue with these activities because of the negative ecological impacts they associated with them, and in many cases, because they believed generating a profit through proffering experiences on Hawaiian shorelines is disrespectful to Native Hawaiian ways of life. Here, Kalani outlines his opinions on the tourism industry’s commodification of shoreline ecosystems on Hawai’i Island:

I mean, they keep taking, taking, taking. What do they give back? [...] Swimming with the dolphins, going out and looking at the manta rays at night. [...] For the Hawaiian, that's a no-no. You're disturbing these animals, that's how we feel. [...] And, and they present this in such a way that, it's good for the economy, it's good for tax revenue, it's good for jobs, it's good [...]. To get this thing, this business going. Generate more tourism, more money for the county. All that stuff. But, why do you have to disturb the animals?

Kalani’s view of activities like “swimming with the dolphins” demonstrates the underlying socio-economic processes that have centered ensuring satisfactory shoreline experiences for tourists at the expense of Native Hawaiian users. Like Olivia, Kalani feels that the tourist

industry's understanding of shorelines and all they contained does not align with his own values. While the individual tourists and the tourism industry more generally are eager to "take" from shorelines through the sale and consumption of recreational activities, they do nothing to "give back" to coastal ecosystems.

The value systems enacted by tourists limits the ability of people like subsistence fishers to access shoreline benefits and resources, because tourists and the tourist industry value extracting from ecosystems but not replenishing them. The co-presence of so many different sets of cultural rhetoric and socio-economic understandings of shoreline ecosystems can result in conflicts between tourists and Hawai'i Island residents. Olivia described a heated interaction she had with a tourist who was stepping on a coral head:

They'll look at you like, I know what I'm doing! Like, no you don't. You see that under your foot? And you almost have to get spikey with 'em. And then they're resentful of it, and I'm like well please go somewhere else [...] I'm not here to give you customer service, I'm here to protect my future food source, so get out!

While the tourist views the coral head simply as something to step on as they make their way in or out of the water while enjoying a novel recreational activity, Olivia sees the coral as a critical component of an ecosystem that provides her and her family with food. The tourist's surface-level understanding of the shoreline clashes with the deep socio-ecological role that it plays in Olivia's life in ways that affect her ability to access the resources she values.

3.B: Coastal Development

Reduced Water Quality and Lateral Shoreline Access

Rampant coastal development in response to ever-increasing numbers of tourists and new residents was a common point of concern for participants. The development of infrastructure and coastal amenities by government and private developers alike was identified as a major process controlling access to shoreline resources and benefits on Hawai‘i Island. Several participants felt that the increased construction of homes, resorts, and golf courses along shorelines had resulted in reduced water quality and unhealthy coral reef ecosystems, in some cases as a result of cesspool leakage and the use of pesticides for landscaping. These factors led participants to not harvest subsistence resources in certain locations for fear of contamination. Murky water caused by coastal runoff in developed areas impacted the ability of participants to enjoy recreational activities along the shoreline. Leia explained the socio-economic realities that underlie cesspool contamination in a particular location on the island, saying:

They're dealing with cesspool seepage. And, that's really concerning because, come on, can I just tell you, the traditional families have had to move away from there, because they can't afford to live there, by and large. [...] So the people that live there now, a lot of them are affluent. And, they're, they're snowbirds. And there's not much community participation in taking care of our oceans! They, just, nobody's like, it's only a small handful. Which is really frustrating! I mean, if you're gonna get the benefits, then, why aren't you gonna take care?

According to Leia, the individuals that can afford to buy private coastal properties tend to be affluent “snowbirds,” residents who live seasonally in second homes on the island during

Northern hemisphere's winter. Careless land-use decisions made by these property owners, such as those made about sewage containment systems, limit the ability of shoreline users to benefit from public shoreline access.

Participants also expressed frustration for how coastal construction has physically blocked their ability to access shorelines in certain locations. Here, Kalani expressed his frustration over development along Ali'i Drive, a main road that passes through the West side of the island, and how it has altered his ability to harvest resources:

You drive on Ali'i drive, you cannot see the ocean! It's all these rich, haole people majority. And they love living on the beach. But. You shutting us out! [...] And you're blocking access! I cannot walk from your property to go over there where I used to go, 60 years ago and pick 'opihi (limpets). Now I gotta walk all the way around and come over there to where I used to go years ago.

The word “haole” in the first line of this quote can be used to mean foreigners in general, but is more commonly understood as referring to White people in particular and comes with a generally negative connotation. Construction along the shoreline has forced beach-goers like Kalani to seek roundabout routes to get to where they want to go via shoreline right-of-ways in order to avoid trespassing, and has cut off lateral access to the shoreline in certain spots. Kalani went on to express how this has been particularly inconvenient for him given his old age, because he is no longer capable of walking miles to reach where he wants to go. Like Leia, Kalani feels his access to the shoreline is controlled by decisions made by affluent property owners who feel entitled to treat coastal areas in the ways they see fit.

Development Permitting Process

Participants across ethnic and racial backgrounds expressed dissatisfaction with coastal development permitting and decision-making processes because they felt they did not adequately consider what was important to local community members. Kalani explained how the construction of resorts, mansions, seawalls and piers along Hawai‘i Island’s western coast has altered the “natural flow” of wind and water currents that have traveled across the landscape for centuries and of cultural significance to Native Hawaiians:

You know, Hawaiians in every ahupua'a, there's a name for the wind [...] So here's all this development now. You're cutting off this wind. [...] But is that important to government or developers or to them? No, it's not important.

Kalani also explained that the name Kailua is derived from the character of the ocean at the location of the township; the combination of the words Kai (saltwater) and Lua (two) indicates a place where two currents merge. Kalani described how the convergence of these two currents had, in the past, created a seasonal cycle of sand flowing out with turbulent winter surf and coming back to the beach with gentler spring and summer tides. This rhythm, and what Kalani characterized as the “regular” movement of ocean currents, was altered with the construction of a seawall in 1900 and a pier in 1915 that was built to facilitate the offloading of cattle (Clark 1985). As a result of coastal development permitting processes that do not take into account elements of place that are valued by Native Hawaiians, benefits derived from ways of knowing the island landscape via flows of wind and water are no longer accessible.

Kalani expressed his frustration with the development permitting process, saying

all too often I'm going to meeting[s] to express our feelings. And it's got to the point where we as Hawaiians, we tired of going to meetings everyday. They just don't hear us. They just refuse to hear us.

Although public comments are welcomed during the permitting process, actually acting on these comments is up to the discretion of the developer. Participants across racial and ethnic backgrounds expressed that they felt developers only engaged with public comments to the extent legally required in order to have their applications approved. Howe shared his opinion that developers purposely schedule mandatory public forums during times when most community members are working. According to him, this ensures that only “boat owners” and others with business interests will show up to provide input.

Management of Resorts and Hotels

Beyond the construction of buildings themselves, the management of individual resorts and hotels built along the coast also impacts the ability of participants to access shoreline resources and blue space benefits. Here, Leia explains the obstacles she has encountered in trying to access one of her favorite beaches which lies in front of a hotel:

We would go and collect there. And you can still collect there, but it's really hard, because it's on – the beach is not hotel property, but it's fronting the hotel. So if you're gonna go there to collect, they kinda give you 'the look,' and make you feel uncomfortable. So, you know. That's a bummer. And you really can't park there easily. [...] I actually think that they don't like a lot of local people there [...] They'll say, "I'm sorry, there's no more, there's no more parking. And I'll get there early in the morning, like before 8. Ok, well, I'm just gonna go and have breakfast at the hotel. So I go to the

hotel, and I park, and then, I just go back, and I circle up, and I'm like, really? [...] Tons of parking [...] so it's like, so much for access.

In this story, although the shoreline is technically publically accessible, Leia's ability to benefit from the shoreline is mediated by her positionality as an outsider in a resort space. Even when she is able to park her car and gather resources at the shoreline, she feels judged and uncomfortable. Leia went on to say that she no longer visits that beach: "I feel horrible being told I have-- I can't park there [...] And the thing is, they have other Hawaiians tell you that. They employ other Hawaiians. I mean, that's really painful." Leia's experience demonstrates the complex realities created by the hospitality industry on Hawai'i Island. While Hawaiians have been rendered outsiders along the beaches fronting resorts and hotels, limiting their ability to access shoreline benefits, the economic dominance of the tourism industry means that many Hawaiians also rely on resorts and hotels to generate income.

The feeling of being unwelcome on shorelines in front of fancy resorts and hotels was a common sentiment expressed by multiple Native Hawaiian participants. Kalani explained how a hotel's installation of exterior lights has forced him and his community to stop holding a cleansing ceremony that requires nudity on the beach in front of the hotel, an outcome he believes the hotel was hoping for. Experiences like those had by Leia and Kalani demonstrate how coastal property owners may employ subtle methods of exclusion to discourage or prevent certain individuals from receiving shoreline benefits or from engaging in particular activities, while remaining in full compliance with laws that mandate they provide public shoreline access.

3.C: Changing Natural Resources

Invasive Species

The presence or absence of a single specific plant or animal species at a shoreline location can greatly impact the performance of traditional subsistence activities. Iolana explained to us how the decline in native edible species of limu, or seaweed, along Hawai'i Island shorelines has halted her and her community's annual engagement in harvests, saying "the places that used to have 'em - it's got all these ugly, ugly invasive stuff now [...] But the very rare edible ones, that had certain areas that people could go and every, every year, they're gone. And they're being taken over by this other stuff." Iolana associated lack of limu and precipitous declines in reef fish population and diversity with impacts from invasive species and ecosystem mismanagement:

The types of fish that we used to, that my father's folks used to always have access to no matter where they went [...] all those reef fish, right? Very little. What is abundant is the stuff that they imported to kill off something. And what they did is not only kill off whatever was a nuisance, it ate all the other stuff.

Iolana's reference to those who "imported stuff" can be interpreted as dissatisfaction with fisheries management on Hawai'i Island. Her ability to enact relationships with shoreline ecosystems in the way that her father did before her is limited by government decisions that are out of her control. Here, Iolana goes on to demonstrate how lack of access to specific fish species results from the proliferation of non-native species, and how this has affected her ability and that of her grandchildren to benefit from shoreline resources:

The generation of native children now probably cannot enjoy half of the resources or half of the subsistence, ocean subsistence things that we did. We, we had an opportunity. So

when we talk about a certain fish they go well, what is that? And you go oh shucks, yeah you guys - we don't see that anymore. And you know, when you go fishing now uh, where you used to have areas where it's known where you could catch a certain type of fish, now you're catching all these invasives. Right? [...] And so, even if there are the fish that you wanna catch, the ones that you're used to, so many of the other ones are in the water, and it's like, woah! Get away!

As a result of growing populations of non-native species of plants and animals created, in part, by government mismanagement of resources, Iolana is no longer able to access the subsistence resources that she values along shorelines. She went on to explain how her ability to access resources like limu is dependent on capital assets, because it is now only readily available in grocery stores and is sold for high prices: “when I think we're forced to buy things that are part of us, and were part of what we were living on as, as kids and growing up [...] It's become a luxury, is what I'm trying to say. Things that belong to, are connected to, now becomes a luxury that was such a part of your life. And um, unfortunately cannot be.”

Beyond the economic burden that loss of a food resource has had on her, Iolana expressed fear that the cultural relationships with shorelines that she holds dear will become mere stories that future generations get to listen to, but never experience firsthand, if access to shoreline resources continues to erode.

Exploitation of Natural Resources

Participants of all racial and ethnic backgrounds frequently expressed disapproval for those who engaged in shoreline harvest activities deemed exploitive and inappropriate. Primary actors identified as having a negative impact on the ability of participants to access shoreline benefits were commercial fishers, aquarium fish collectors, and subsistence users who employed

specific harvesting styles. Several participants characterized the actions of these groups as careless – purely extractive and doing nothing to ensure the long-term proliferation of shoreline resources. Kalani disapproves of his peers who employ techniques like killing masses of fish with chlorine while fishing for profit. Keoni explained how he and his community view and are affected by those who deal in commercial activities like the aquarium trade: “I mean, we fight the aquarium trade because we believe that the reefs should be more for consumption versus ornamenting an aquarium tank. [...] it has jeopardized a lot of those things that we hold near and dear to our heart.” Native Hawaiian participants commonly expressed that actions prioritizing profits or harvest yield over long term ecosystem health not only affected their individual ability to access shoreline resources, but were also culturally unacceptable. Here, Olivia, speaking about aquarium collectors, explains how commercial extraction activities differ from subsistence practices:

Subsistence means there's a give and take. Pure extraction is you're extracting for profit. You can see it in the aquarium fishery, you can see it – 'cause a bad day for them is 2500 fish [...] That's when they're sad, they're all like we didn't take money today [...] Yeah, and they're giving nothing back.

Multiple Native Hawaiian research participants felt that specific cultural groups of subsistence shoreline users employed harvest techniques that impacted their ability to benefit from shoreline resources. In particular, recent arrivals to Hawai‘i Island from Asia and other South Pacific Islands were held responsible for gathering resources in ways that reduced the long-term health of plant and animal populations. Harvesting juvenile fish and cutting limu at its roots instead of higher up the stem to allow it to grow back are other examples of behaviors that

participants identified as reducing subsistence species populations. Here, Kalani describes his perception of improper resource use and harvesting protocol:

We used to get, we used to get angry at [people who] would go to the beach and take everything. Baby fishes. Seaweed. They used to hoard. They used to take everything. And that's not the Hawaiian style. Hawaiian style you take what you want to eat today and tomorrow, and you leave for another day.

Here, Howe shares his opinion that those who spearfish fail to see all that a coral reef ecosystem has to offer:

You know, like a lot of these guys, they just go and look for fish to hunt, you know, they don't care, why would they care about the reef, they just want, looking for fish, you know [...] Like if you're hunting, everything, you just tune everything out, everything is just backdrop.

Howe expressed that the lack of care that people like subsistence spearfisherman invested in reef ecosystems led to reduced populations of reef fish, affecting his ability as a recreational user of coastal environments to receive blue-space benefits from snorkeling, diving, and observing fish. Howe's opinions on subsistence use of coastal ecosystems shows how multiple narratives exist and interact within shoreline spaces. While Howe is mostly focused on shorelines as provisioners of recreational benefits and as sites where he can observe fish he referred to as friends, others value them for their role as a food source. Both of these conceptualizations of shorelines interact and affect each party's ability to access the benefits they desire along shorelines.

4: Maintaining Access to Shoreline Benefits

Although shorelines are designated as public spaces accessible to anyone, research participants expressed using a variety of formal and informal methods to protect access to the things they value along shorelines. Most informal methods center around Hawai'i Island social relations and the safeguarding of knowledge, while formal methods employ legal systems to challenge existing access relations or establish increased shoreline access. Here, I discuss two methods of informal access maintenance, followed by two formal types.

4.A: Keeping Secrets and Creating Un-Desireable Places

Two participants with different racial and ethnic backgrounds deployed their personal knowledge of specific shorelines to maintain their access to benefits. In the “Access to Origins and Heritage” section presented earlier, participant Keoni described the depth of his inherited knowledge of shorelines characteristics, accessed through traditional place-names. Similarly to Keoni, Howe, a Vietnamese participant and dedicated recreational shoreline user, expressed how his familiarity with a particular coastal location provided him with a level of place-based knowledge that other users did not have. He explained that because of this knowledge, he had access to areas that others did not even know existed, and was even able to locate items that he had lost in the ocean by tapping into his underwater “map” of the place.

Keoni and Howe both felt that the depth of their knowledge about particular shorelines provided them with an understanding and connection to those shorelines that others did not have. Both participants explained that they used methods to safeguard this knowledge in order to maintain their valuable relationships to specific shorelines, and to prevent outsiders from affecting those shorelines in ways that would hinder their own ability to derive benefits from them. Howe described how he had occasionally come across rarely sighted and charismatic

animals, like Hawkbill turtles, along the shoreline area that he frequents. Howe took care to keep these discoveries secret because he felt “if you share things about things, you, you are putting precious thing in danger's way, you know.” Howe also explained how he took advantage of a widespread fear of sharks in his local community to encourage superstition that they inhabited certain areas. Howe deployed this rumour in order to prevent people harvesting fish in shoreline locations that he valued, because he believed that harvesting practices were overly extractive and harmful to these places.

Keoni explained how the intimate connection and knowledge of place held by him and his community is so important to them that they currently live without electricity in an effort to preserve access to their way of life. As he explained: “we don't want developers to come in, we don't wanna have a lot of people coming, we don't wanna have electricity because, you know, then it's inviting to everybody else, yeah?” Howe and Keoni both felt that preventing “outsiders” from accessing the shorelines they hold dear is necessary to ensure that their own ability to access benefits is maintained. As a result they have taken steps to keep secrets and discourage those who do not have the familiarity they do with specific shoreline ecosystems from visiting them. This kind of informal yet zealous “gatekeeping” of shoreline access demonstrates how important maintaining benefits derived along shorelines is to residents.

4.B: Legal Contestation and Policy Solutions

Methods used by participants to maintain access were not limited to navigating social relations, but in some cases relied on legal structures to contest processes that would result in reduced access to shoreline benefits. Three participants in particular discussed using legal methods to maintain access to benefits for themselves and their community. Howe frequently snorkels and dives in an area that has already suffered from high levels of industrial

development. He shared that he has been actively engaged in collecting data on existing coral reef cover and has been documenting the shoreline ecosystem through photographs. He explained that he is “building a case” so that if future development is ever proposed in this area, he will have the means to argue against it.

Several Native Hawaiian participants explained how they had worked on honing their ability to navigate political and legal arenas in addition to carrying on cultural tradition and heritage, so that they could maintain access to the benefits they and their communities value along shorelines. Iolana, a Native Hawaiian woman and life-long resident of Hawai‘i Island, described how she was empowered by her identity as a lineal descendent of a specific coastal site to request a case hearing to contest the approval of a coastal development:

In order to request a contested case hearing, you needed to be either a lineal descendent and have some direct connection, that you will be directly hurt, right? Or aggrieved. [...] I had two days to find a lineal descendent [...] I'm calling, calling all over. I call my cousin, who does genealogy for our family, and I said, hey you gotta find me a lineal descendent because I'm going crazy. And he goes, he pauses, and he goes “Iolana,” I go “Yeah,” and he goes, “You're a lineal descendent.” [laughs] [...] And Friday morning, I filled out the papers, got my genealogy attached, went down to the hearing, and requested a contested case hearing. Recited my genealogy and I was granted one.

As a result of having access to her genealogical relationship to place, Iolana was eventually able to halt a development that would otherwise have destroyed an ancient coastal ali‘i complex where her ancestors had once spent time. She maintained access for herself and future generations to this site of valuable cultural heritage through a powerful combination of legal processes and knowledge of self. Keoni described how he too has used his ability to navigate two

different cultural frameworks to advocate for his community, saying “that Western sense has helped me in my cultural sense so that I can walk two sides – I can be who I am but also understand the system that I’m working in.” He explained how he has sought out funding from wealthy NGOs to support his community’s effort to create a plan to manage their own natural resources as a Community Based Subsistence Fishing Area (CBSFA), which would give them far greater autonomy over shoreline ecosystems and traditional fishing grounds. Keoni explained his success in seeking out this support, saying it was due to:

... my training, going to school, getting these different types of things, learning about government, learning about how it operates, and how to work my way in there to create change in policy to affect how we live.

By effectively understanding how to “work the system,” Keoni and Iolana have both been able to maintain access to the shoreline benefits that they and their communities value.

4.C: Knowledge Sharing

All participants but one explained how they took action to educate others about the ecological and cultural importance of coastal and coral reef ecosystems, in efforts to ensure that access to benefits derived from shorelines would remain available to themselves and to future generations. Uneducated shoreline users were most commonly associated with the tourist population. As will be discussed in the next section, participants across backgrounds felt that their ability to access shoreline resources and blue space benefits was negatively affected by the tourism industry. Harmful tourist behaviors included things like littering, disturbing animals, killing specimens in tide pools, and stepping on coral. Despite widespread categorization of tourists as harbingers of shoreline degradation, though, many participants took time to share their knowledge of shorelines with tourists they interacted with. In some cases, participants expressed

that they felt tourists who had negative effects on coastal ecosystems were simply uninformed and needed to be taught Hawaiian values of how to care for shorelines. Liza, a White participant and long-time resident of Hawai‘i Island, and her husband Ahe, who is Native Hawaiian, explained how they approach educating shoreline users:

Ahe: We donate a lot of our time to [...] just help and educate, and, you know, just be out there and be there, and you know, let ‘em know, we’re not scolding people but, just cheering ‘em on. Yeah.

Liza: Because people don’t know, I mean I don’t think – well you may have your random little crazies out there, but, you know, majority of the time people aren’t intentionally - they aren’t out there saying let me kill the environment!

Through educating others, Ahe and Liza attempt to mitigate the consequences that those who are ignorant about how to behave appropriately in coastal ecosystems have on their own family’s ability to access shoreline benefits. Ahe said they were motivated to do this because “we want to show our kids what we got to see. And then some, you know?”

Education was seen by multiple participants as a method for ensuring that access to blue space benefits would be maintained for future generations. Olivia explained why she made the decision to move her family from the mainland back to her birthplace on Hawai‘i Island, saying:

I brought them [my kids] so that they could have the full benefit of our home. And the full connection, because, I noticed the people in the U.S. mainland just don’t have that type of, of root to their environment. [...] And I didn’t want them to go to school with people like that, and I didn’t want it to rub off on them. I wanted to bring them home, and they would develop that feeling of, of consciousness and responsibility.

Olivia felt that her children would not have the “full benefit” of being from Hawai‘i if they were not educated about what it means to be connected to the environment. Olivia went on to explain how her decision to move back to Hawai‘i led to a split with her husband at the time, because he did not want to make the move. Ensuring that her children would have the cultural education to access and appreciate benefits derived from places on Hawa‘i Island outweighed the personal toll of moving.

Other participants across racial and ethnic backgrounds also expressed that they felt educating younger generations was central to maintaining continued access to blue space benefits for their community now and into the future. As Kalani put it:

We preach that all the time [...] Mālama ke kai. Mālama the ocean. Right? Take care of the ocean for future generations [...] it’s for them, it means for the future generations it’s important for us kūpuna to pass this down to the younger generations.

Kalani and other participants viewed instilling knowledge in younger generations of what it means to mālama and practice pono, or responsible, activities along shorelines as a kuleana, and took it this duty seriously. Keoni, who works as an educator in his village, said “as a teacher, I realize how important it is to continue our practice, continue our culture [...] making sure that the kids are equipped is so important, because they’re gonna have to lead it one day.” Keoni also explained how his work as a community advocate has led him to share some of his extensive knowledge of the shorelines and other places he is connected to with NGOs and researchers like Alison and I, despite fear that information will be misused. He explained how he feels that:

One part of my job is to share the story of our place [...] I just pray. My hope is that, when I share this mana ‘o, that it somehow comes back. That’s the main thing. Because I want – if

we kept it to ourselves- it takes harder work to keep it archived and keep those traditions alive.

Keoni's willingness to share knowledge with outsiders has garnered criticism from within his tight-knit community. However, he believes that sharing this knowledge will benefit his community in the long run and will help them to maintain access to traditional place-relationships through documenting them and raising awareness about their importance.

DISCUSSION

Despite legal recognition of the importance of public shoreline access and of upholding customary Native Hawaiian resource gathering rights, access to benefits derived from shorelines is not equally distributed on Hawai‘i Island. Access to benefits is controlled by inter-related processes created by the tourism industry, coastal development, and changing natural resources. Legal definitions of shoreline and implementation of public shoreline access fail to address the nuances of shoreline access relations on Hawai‘i Island. Here, I examine three themes that emerged from my analysis and demonstrate how current public shoreline access laws fail to recognize the importance of these themes. I then present possibilities for how public shoreline access could be more equitably implemented on Hawai‘i Island, and ideas for further research into public shoreline access enactment.

Intangible Blue-Space Benefits

Different people associate Hawai‘i Island shorelines with different meanings based on their socio-economic and cultural background. Tourists consume shorelines as commodities, sold to them as sites of paradise and relaxation where they can escape from their hectic lives on the U.S. mainland and elsewhere in the ‘real world’ (Trask 1991). Developers view shorelines as prime coastal real estate (Fletcher et al. 2012), and some coastal property owners view shorelines as boundaries that they must define in order to enforce their rights to exclude people from their private property (Vance & Wallsgrove 2007). The various “lenses” with which different actors understand shorelines as places are related to the blue-space benefits that they value accessing along coasts.

Blue space benefits received from shorelines are not static or universal, but relational and related to broader contexts of participant interactions with place (Foley & Kistemann 2015). I have identified three categories of blue-space benefits that were important to research participants, who expressed that their access to these benefits is currently limited. The types of blue-space benefits identified here bear a remarkable similarity to categories of Cultural Ecosystem Services (CES) identified by both Gould et al. (2014) and Pascua et al. (2017) on Hawai‘i Island. This is likely in part a result of the fact that the interview protocol used drew on methodologies developed by these authors, in order to evaluate intangible relationships to coastal ecosystems held by participants. Similarities between identified blue-space benefits and CES categories for Hawai‘i Island is further evidence that these categories are extremely salient for residents across a variety of backgrounds and research contexts. My analysis of blue-space benefits also supports the idea that intangible values associated with ecosystems like shorelines are connected to material features (Chan et al. 2012). For example, participants expressed experiencing spiritual connection to aumakua via the presence of specific boulders, and tapped into cultural heritage traditions by interacting with specific species of fish.

Legal definitions of shorelines and implementation of access laws on Hawai‘i Island currently fail to recognize the existence of intangible valuation of shoreline features. They also fail to understand the various ways that shorelines are valued and viewed by different users. This lack of acknowledgement of both the importance of blue-space benefits and the differences in types of benefits accessed by people exacerbates inequities in daily lived experiences of public access (Gould et al. 2014). Shorelines are not merely areas of substrate that lie below the high water mark as the law posits – they are ever-shifting places embedded with intangible associations, valuations and representations that are variably accessed by different people.

The Importance of Caring for Shorelines

Native Hawaiian relationships to ‘āina have depended on mutual sustenance and balanced processes of giving and taking for thousands of years (Maly 2001). Although traditional forms of ahupua‘a land management are no longer in place, my findings support the notion that having the privilege to access resources based on fulfilling personal responsibility to care for them, or the concept of kuleana, remains important (e.g. Andrade 2008, Matsuoka & Macgregor 1994). Interestingly, my findings indicate that feeling responsible for “giving back” to shoreline ecosystems was not limited to Native Hawaiian participants, but was shared by participants across racial and ethnic backgrounds who felt connected to shorelines. Though they did not always use Hawaiian terms to describe their beliefs, practices of care, or mālama, and motivation to fulfill one’s kuleana, were points of commonality among participants. In particular, knowledge sharing with younger generations or uninformed shoreline users was practiced by all research participants but one, and was widely framed as a method used to instill an ethic of care in others.

Many participants linked caring for shorelines with the perpetuation of Native Hawaiian culture. Traditional practices of caring for shorelines are undertaken to connect with heritage and ancestral ways of being in order to ensure that shoreline ecosystems will remain healthy for future generations to experience (Kame‘eleihiwa 1992). Caring for shorelines forms a common thread that spans temporalities and connects contemporary Native Hawaiians to ancestors and to future shoreline users (Andrade 2008). I found that for Native Hawaiian participants, having access to blue-space benefits is not only about being able to enjoy them in the present, but ensuring that access to them will remain for future generations.

Public shoreline access laws on Hawai‘i Island do not acknowledge that for many residents, ensuring the availability of access to shoreline benefits for future generations is a central concern. Public shoreline accessibility in the present may be meaningless for Native Hawaiians if it is likely that the natural resources they value will not be there for their grandchildren to enjoy in the future as a result of environmental degradation or resource exploitation.

The Effects of a Postcolonial Political-Economy

Native Hawaiian cultural values and relationships with ‘āina have been continuously disenfranchised in favor of political and economic development that has disproportionately favored Eurowestern interests and worldviews, dating back to early arrivals of Eurowestern settlers (e.g. Andrade 2008, Kame‘eleihiwa 1992). My findings indicate that a postcolonial economic context influences which groups of individuals are able to access benefits most readily under current public shoreline access laws.

The contemporary tourism industry is a continuation of colonial processes that have historically denied Native Hawaiian rights to access land and natural resources (Apo et al. 2003). My findings support this claim by demonstrating that participants were limited in their access of blue-space benefits by the presence of crowds and ecosystem degradation that has resulted from the tourism industry. Universal public access to shorelines is a boon to the Hawaiian tourism industry, drawing visitors from across the U.S. mainland and elsewhere who are attracted to the idea of relaxing on or recreating on a Hawaiian beach (Gove 2019). My analysis shows that the physical locations of public shoreline access points are clustered on the Western side of Hawai‘i Island, due in part to this area’s status as a tourist hot spot and in part because of the island’s geology. State-sponsored rhetoric about the economic benefits provided by the tourism industry

(Williams & Gonzalez) that are enabled, at least in part, by the presence of publicly accessible beaches for all glosses over the exclusion of Native Hawaiians from shoreline benefits that is caused by the tourism industry (Fabinyi et al. 2018).

My findings support the claim that underlying power structures influence whose enactment of blue-space benefits is prioritized (Saxena et al. 2018). My analysis of demographic distribution on Hawai‘i Island shows that census block groups containing public shoreline access points have higher populations of Whites living in them than of Native Hawaiians or other People of Color. Drawing conclusions about the correlation between number of shoreline access points and the racial composition of different areas on Hawai‘i Island would require a more detailed level of data than is available for census block groups. Still, on a surface level, it is likely that more White people will be present at any given time on beaches enacting their own versions of blue-space benefits.

My results also demonstrate that on Hawai‘i Island shorelines, Eurowestern cultural models of property and acceptable shoreline behaviors (Thompson 2007) are enacted at the expense of Native Hawaiian access to benefits. Colonial processes have long favored the acquisition of Hawaiian land by White settlers at the expense of Native Hawaiians (Alexander 1891, Van Dyke 2008, Kame‘eleihiwa 1992). Native Hawaiian participants commonly took issue with wealthy “haole” coastal property owners and developers who they felt controlled their ability to access benefits by making the shoreline harder to reach, limiting participation in public commenting forums, and by excluding them from beaches fronting hotels if they were not paying guests. These processes effectively exclude participants from places and negotiations of access relations along lines of economic selectivity (Ribot & Peluso 2003).

I have also found that a postcolonial political economy that rewards commercial harvest activities and the exploitation of natural resources with capital gain disadvantages subsistence users and results in conflict. Ethics surrounding access to particular resources are influenced by the existence of social meaning beyond economic value, scarcity of the resource, and social relations that affect the balance between group or individual resource control (Peluso 1996). Global economic structures have had negative effects on the ability of subsistence shoreline users to maintain access to the things they value. For example, reef fish traditionally used for subsistence purposes are now exported across the world to satisfy demands for aquarium pets. Conflicts over un-Hawaiian use of resources manifest in deepening social divisions between shoreline users belonging to various ethnic and cultural groups on the Island. Such tensions are likely to become increasingly fraught as shorelines continue to change at rapid rates as a result of climate change, and access to traditionally important subsistence resources becomes ever more rare (Fletcher et al. 2012).

The on-the-ground ability of individuals to benefit from shoreline resources is unevenly distributed based on socio-cultural and economic positionality (Ribot & Peluso 2003). Public shoreline access laws on Hawai‘i Island do not take into account how positionality within a postcolonial context dictates who is able to easily access benefits derived from shorelines, sometimes at the expense of other users. By failing to do so, the law also does not address the perpetuation of social divisions and feelings of unrest between shoreline users.

Possibilities

What would public shoreline access laws look like that took into account the realities of shoreline access dynamics on Hawai‘i Island? They would move beyond designations of proxies used for locating the high water mark and defining shoreline extent by including recognition of

the multiple, complicated ways in which shorelines are interpreted and conceived (Leyshorn 2018, Peluso 1996). They would take into the account the importance of intangible valuation of shoreline and shoreline landscape features (Gould et al. 2014, Chan et al. 2012). They would not only acknowledge customary public access rights, but would examine the ways in which processes of access and exclusion are variably experienced based on socio-cultural and economic positionality (Allison et al. 2011, Fabinyi et al. 2018). They would acknowledge the importance of access to culturally-significant shoreline landscapes for the continuation of Native Hawaiian culture, especially given the ongoing loss of access to natural resources and land that has been perpetuated by U.S. colonialism (Saxena et al. 2018).

Revised shoreline access laws would no longer serve to legitimate processes that reduce the ability of Native Hawaiians to access shoreline benefits, by reframing access ethics to align with Native Hawaiian relational worldviews rather than with Eurowestern cultural value systems. In doing so, they would have to recognize that access to shorelines in the present is incomplete if ecosystem degradation means that future generations will not also have access to the same benefits derived from shorelines. The designation of shoreline access points would also consider the needs of kūpuna and those less physically able to walk long distances to reach areas of shoreline that are important to them. Equitable public shoreline access laws would also use Hawaiian language and terminology to legally introduce cultural concepts of kuleana and mālama as a common praxis for all shoreline users. One potential implementation of this would be to have a permitting system for certain beaches, wherein permits are issued giving individuals the right to benefit from blue space along the shoreline based on proof of their performance of “care” activities at those shorelines. Not only would such an implementation benefit shoreline ecosystems, the performance of mālama activities would also create new understandings of

shorelines for those engaging in them and could potentially result in deeper connections to place, even for those just visiting.

Research Limitations and Recommendations

I used a small sample size of research participants to analyse shoreline access relations on Hawai‘i Island. Experiences of shorelines and abilities to derive benefits from them is highly variable and related to social, cultural, and economic background. Future investigations of access dynamics would benefit from using data gathered from a wider array of identities. Including more participants of various age groups would also be beneficial for evaluating how/if cultural relationships to shorelines and the ability to access benefits varies generationally. Ideally, future research would also include ethnographic research undertaken for an extended period of time, in order to better understand on-the-ground dynamics in shoreline spaces.

This research focused largely on the processes that control access to benefits for Native Hawaiian research participants. This was in part because Native Hawaiian participants expressed frustration over lack of access significantly more than participants of other racial and ethnic backgrounds. However, the ability of non-Native Hawaiians to access shorelines is also mediated through a variety of underlying processes. Future studies of shoreline access relations on Hawai‘i Island should take more care to evaluate nuanced experiences of shoreline access had by both Native and non-Native residents of Hawai‘i. This would lead to a more complete analysis of access dynamics given the diverse demographic make up of Hawai‘i Island.

Analysis of data was inherently limited by my own positionality as an outsider in a complicated socio-ecological system, and also by the timeframe provided for undergraduate senior thesis projects at the University of Vermont. The coarseness of American Community

Survey data available during this project also prevented more meaningful spatial and statistical analysis from occurring. More robust quantitative analysis of demographic trends, such as income level and property ownership, that may affect access distribution could yield interesting insights about the dynamics of shoreline access on Hawai‘i Island.

CONCLUSION

I have identified broad categories of blue space benefits derived from shorelines by research participants, and attempted to unravel the processes used to maintain and control access to them. I have shown that processes that limit access to benefits do not happen by accident, but arise as a result of broader socio-economic and political structures that shape the realities of Hawai‘i Island residents. I have also created comprehensive maps of public shoreline access locations in order to show how the spatial distribution of access interacts with broad demographic trends, filling a data gap in visual representations of access point locations. My original research questions and main findings are:

1) *What kinds of benefits are derived from shorelines by research participants on Hawai‘i Island?* Having access to benefits associated with heritage, subsistence resources, and spiritual connection is highly valuable to Native Hawaiian participants in particular, and to non-Native Hawaiians to a lesser extent.

2) *What processes control the ability of participants to access benefits derived from Hawai‘i Island shorelines?* Processes associated with the tourism industry, coastal development, and changing natural resources limit the ability of participants across a broad range of racial and ethnic backgrounds to access the shoreline benefits they value.

3) *How do processes controlling access to shoreline benefits on Hawai‘i Island result in conflict?* Flows of conflict and judgement occur regularly and result in contested uses of shorelines, in part because of social divisions that result from having limited access to valuable resources. Some participants expressed using various methods to maintain their own access to benefits at the exclusion of harmful others.

4) *How does demographic distribution on Hawai‘i Island interact with the locations of public shoreline access points to shape spatial realities of shoreline access?* Census block groups containing public shoreline access points all contain higher populations of White people than of Native Hawaiians, mixed-race Native Hawaiians, and most other non-White populations.

Shoreline access laws on Hawai‘i Island, though purportedly meant to ensure access for all individuals to shorelines, fail to ensure that access distribution is not only equal, but equitable in practice. Hawai‘i Island shoreline access laws function on the assumption that all individuals have the same right to benefit from shoreline spaces. This assumption ignores Hawaiian cultural valuation of reciprocity with natural resources, a worldview that emphasizes receiving benefits in return for actively caring for place. Public shoreline access laws do not take into account the political, economic, and social circumstances that have resulted in the continuous structural erosion of Hawaiian culture. In framing access to benefits as a right equally merited and equally achievable by all, shoreline access laws in their current state are contributing to Native Hawaiian cultural disenfranchisement.

My research shows that Native Hawaiian cultural values of reciprocity with natural resources and the importance of investing care in shoreline ecosystems are shared by individuals on Hawai‘i Island across racial and cultural backgrounds. This finding suggests huge potential for cultivating community and collaboration around implementing shoreline access laws that honor these values. I propose a re-framing of public access laws wherein access to blue-space benefits is contingent on caring for shorelines. Such a reformation would ultimately be more equitable, more ecologically sound, and more culturally appropriate. If nothing is done to reconfigure shoreline access dynamics on Hawai‘i Island, shoreline users like Iolana and her

family, as she describes below, will continue to experience loss of place, loss of experiences, and loss of culture.

When I tell my kids about things we used to do, and where we went, they wanna go there, and I go, but it's not there anymore. [...] I don't want our culture to become just stories that you tell your kids, or your grandkids. I want them to be experiences.

ACKNOWLEDGEMENTS

This work is dedicated to my family. To the places that we have loved, lived in together, and also lost together. To the stories that we share. You motivate me to care about the stories of other people and their places.

This project would not have been possible without generous funding from the Ian Worley Award, offered by the UVM Environmental Studies Department, which allowed me to travel to Hawai'i Island.. It would also not exist were it not for the extremely generous patience and reassurance provided by my research mentor, Alison Adams. I am incredibly grateful to her for not only allowing me to accompany her on a beautiful adventure and incredible learning experience on Hawai'i Island that I well cherish forever! - but also for providing guidance and invaluable feedback throughout the data analysis and writing process. I am also incredibly grateful also to the participants who shared their time, stories, vulnerability, and wisdom with Alison and I.

I would also like to express my deep gratitude to committee member Rachelle Gould, who has helped to shape this project in multiple ways and who took the time to provide so much generous feedback. Thank you also to thesis advisor Cherie Morse, who supported me throughout the thesis proposal process, and to committee member Beverley Wemple, who provided invaluable support as I developed the spatial analysis portion of this project. I am also incredibly grateful to my roommates, Catie and Frances, who have cared for me, supported me, and believed in me in ways that mean more than I can express as I undertook this project.

LITERATURE CITED

- Alexandar, W. D. Interior Dept. (1891). *A Brief History of Land Titles in the Hawaiian Kingdom*. (Appendix 1 to Surveyor General's Report). P.C. Advertiser Co. Steam Print: Honolulu
- Allison, E. H., Ratner, B. D., Asgard, Bjorn, Willmann, R., Pomeroy, R. & Kurien, J. (2012). Rights-Based Fisheries Governance: from Fishing Rights to Human Rights. *Fish and Fisheries* 13: 14-29. DOI: 10.1111/j.1467-2979.2011.00405.x
- Andrade, C. (2008). *Hā'Ena: Through the Eyes of the Ancestors*. University of Hawai'i Press: Honolulu
- Ayers, L. A., Kittinger, J. N., & Vaughan, M. B. (2018). Whose right to manage? Distribution of property rights affects equity and power dynamics in comanagement. *Ecology and Society* 23(2):37. <https://doi.org/10.5751/ES-10124-230237>
- Benson, K. & Nagar R. (2006). Collaboration as Resistance? Reconsidering the Processes, Products, and Possibilities of Feminist Oral History and Ethnography. *Gender, Place & Culture* 13(5): 581-592, DOI: 10.1080/09663690600859083
- Brief for Public Access Shoreline Hawai'i & Sierra Club as Amici Curiae at 2, Diamond v. State, 112 Hawai'i 161, 145 P.3d 704 (2006)
- Chan, K., Satterfield, T., Goldstein, J. (2012). Rethinking ecosystem services to better address and navigate cultural values. *Ecological Economics* 74: 8-18. doi:10.1016/j.ecolecon.2011.11.011
- Chock, J. (1995). One Hundred Years of Illegitimacy: International Legal Analysis of the Illegal Overthrow of the Hawaiian Monarchy, Hawai'i's Annexation, and Possible Reparations. *University of Hawai'i Law Review* 17(463), 463- 452
- Chun, J., Minh-Chau, C., Liu, L. & Patoskie, J. (2017) 2017 Annual Visitor Research Report. *Hawai'i Tourism Authority*
- Cloke, P. & Jones, O. (2001). Dwelling, place, and landscape: an orchard in Somerset. *Environment and Planning A* 33: 649-666. DOI:10.1068/a3383
- Cope, M. & Kurtz, H. (2016). Organizing, Coding, and Analyzing Qualitative Data in *Key Methods in Geography*, Clifford, N., Cope, M., Gillespie, T. & French, S, (Eds), 647-664. Los Angeles, CA: Sage Publications
- Dombois, D. M. (2007). The Hawaiian Ahupua'a Land Use System: Its Biological Resource Zones and the Challenge for Silvicultural Restoration. *Bishop Museum Bulletin in Cultural and Environmental Studies* 3:23-33
- Dowling, R. (2016). Power, Subjectivity, and Ethics in Qualitative Research. In *Qualitative Research Methods in Human Geography*, Hay, I (Ed.), 29-44. Ontario, CA: Oxford University Press
- Dunn, K. (2016). Interviewing. In *Qualitative Research Methods in Human Geography*, Hay, I (Ed.), 149-188. Ontario, CA: Oxford University Press
- Fabinyi, M., Dressler, W., Pido, M. (2018). Access to Fisheries in the Maritime Frontier of Palawan Province, Philippines. *Singapore Journal of Tropical Geography* 40: 92-110. doi:10.1111/sjtg.12260
- Fletcher, C. H., Bradley M. R., Genz, A. S., Barbee, M. M., Dyer, M., Anderson, T. R., Lim, S. C., Vitousek, S., Boicchio, C., & Richmond, B.M. (2012). *National Assessment of Shoreline Change: Historical Shoreline Change in the Hawaiian Islands*. Reston, Virginia: U.S. Geological Survey Open-File Report 2011-1051.

- Foley, R., Kistemann, T. (2015). Blue Space Geographies: Enabling Health in Place. *Health & Place*, 35, 157-165. <https://doi.org/10.1016/j.healthplace.2015.07.003>
- Gascon, M., Zijlema, W., Vert, C., White, M. P., & Nieuwenhuijsen, M. J. (2017). Outdoor blue spaces, human health and well-being: A systematic review of quantitative studies. *International Journal of Hygiene and Environmental Health*, 220(8), 1207-1221. <https://doi.org/10.1016/j.ijheh.2017.08.004>
- Gove, J.M., Lecky, J., Walsh W. J., Ingram, R. J., Williams, L. K., Polovina, W. I., Maynard, J., Whittier, R., Kramer, L. et al. (2019) *West Hawai‘i Integrated Ecosystem Assessment Ecosystem Status Report*. Pacific Islands Fisheries Science Center, PIFSC Special Publication, SP 19-001, 46.
- Gould, R.K & Lincoln, N. K. (2017) Expanding the suite of Cultural Ecosystem Services to include ingenuity, perspective, and life teaching. *Ecosystem Services* 25: 117-127. <http://dx.doi.org/10.1016/j.ecoser.2017.04.002>
- Gould, R. K., Klain, S. C., Ardoin, N. M., Satterfield, T., Woodside, U., Hannahs, N., Daily, G. C. & Chan, K. M. (2015). A protocol for eliciting nomaterial values through a cultural ecosystem services frame. *Conservation Biology* 29(2): 575-586. DOI: 10.1111/cobi.12407
- Gould, R. K., Ardoin, N. M., Woodside, U., Satterfield, T., Hannahs, N., Daily, G. C. (2014). The forest has a story: cultural ecosystem services in Kona, Hawai‘i. *Ecology and Society* 19(3):55. <http://dx.doi.org/10.5751/ES-06893-190355>
- Hawai‘i State Constitution, article XII, section 7
- Haw. Admin. R. § 13-222-1
- Haw. Admin. R. § 13-222-16(b)(12)
- Haw. Rev. Stat. § 205A-42(a)
- Haw. Rev. Stat. § 205A-42(b)
- HI County Code, § 34 1996, ord 96-17, sec 2
- H.R. Rep No. 53-17 at 586, 1894
- Ingold, T. (1993). The Temporality of Landscape. *World Archaeology* 25(2): 152-174. <https://www.jstor.org/stable/124811>
- Kame‘eleihiwa, L. (1992). *Native Land and Foreign Desires: Pehea Lā E Pono Ai?* Bishop Museum Press: Honolulu.
- Kana‘iaupuni, S. M. & Malone, N. (2006). This Land is My Land: The Role of Place in Native Hawaiian Identity. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being*, 3(1).
- Kauanui, K. J. (2008). *Hawaiian Blood: Colonialism and the Politics of Sovereignty and Indigeneity*. Duke University Press: Durham & London.
- La Croix S. J. & Roumasset J. (1990). The Evolution of Private Property in Nineteenth-Century Hawaii. *The Journal of Economic History*, 50(4), 829-852
- Laenui, Poka. Hawaiian Statehood Revisited. *Reclaiming Indigenous Voice and Vision*, edited by Marie Battiste, UBC Press, 2011.
- Leyshon, C., (2018). Finding the Coast: Environmental Governance and the Characterisation of Land and Sea. *Area* 50:150-158. DOI: 10.1111/area.12436
- Liliuokalani. (1897). *An Account of the Creation of the World According to Hawaiian Tradition*. Lee and Shepard: Boston.
- Maly, K. (2001). *Mālama pono i ka ‘āina – an overview of the Hawaiian cultural landscape*.

- Matsuoka, J. K. & McGregor D. P. (1994). Endangered culture: Hawaiians, nature, and economic development in *The Global Environmental Crisis: Implications for Social Welfare and Social Work* eds. Hoff, M. D. & McNutt, J. G. Avebury.
- McGregor, D. P. (1996). An Introduction to the *Hoa 'āina* and Their Rights. *The Hawaiian Journal of History* vol. 30.
- Millennium Ecosystem Assessment (2005). *Ecosystems and human well-being: Synthesis (PDF)*. Washington, DC: Island Press. ISBN 1-59726-040-1.
- Pascua, P., McMillen, H., Ticktin, T., Vaughan, M. & Winter, K. B. (2017). Beyond services: a process and framework to incorporate cultural, genealogical, place-based, and indigenous relationships in ecosystem service assessments. *Ecosystem Services*.
<http://dx.doi.org/10.1016/j.ecoser.2017.03.012>
- Peluso, N. (1996). Fruit Trees and Family Trees in an Anthropogenic Forest: Ethics of Access, Property Zones, and Environmental Change in Indonesia. *Comparative Studies in Society and History* 38(3): 510-548. <https://www.jstor.org/stable/179231>
- Public Access Shoreline Hawaii v. Hawaii County Planning Commission*, 79 Hawaii 425, 447 (1995).
- Pub. Access Shoreline Hawai'i v. Bd. Of Land & Natural Res., No. 05-1-1332-07 VSM
 Public Access, HI County Code, § 34 (1996, ord 96-17, sec 2)
- Pukui, M. K. & Elbert, S. H. (2003). "Mana" in *Hawaiian Dictionary*. Ulukau, the Hawaiian Electronic Library, University of Hawai'i Press. Retrieved from
<http://wehewehe.org/gsd12.85/cgi-bin/hdict?a=q&j=pk&l=en&q=mana&a=d&d=D12710>
 on 19 March 2019
- _____. (2003). "Kuleana" in *Hawaiian Dictionary*. Ulukau, the Hawaiian Electronic Library, University of Hawai'i Press. Retrieved from
<http://wehewehe.org/gsd12.85/cgi-bin/hdict?e=q-11000-00---off-0hdict--00-1----0-10-0 0---0direct-10-ED--4-----0-11pm--11-haw-Zz-1---Zz-1-home-kuleana--00-3-1-00-0--4- --0-0-11-00-OutfZz-8-00&a=d&d=D9654>
- Reineman, D., Wedding, L. M., Hartge, E. H., McEnery, W., Reiblich, J. (2016). Coastal Access Equity and the Implementation of the California Coastal Act. *Stanford Environmental Law Journal*, 36(39), 89-108
- Ribot, J. C., Peluso, N. L. (2003). A Theory of Access. *Rural Sociological Society*, 68(2), 153-181
- Saxena, A. K., Chatti, D., Overstreet, K. & Dove, M. R. (2018). From moral ecology to diverse ontologies: relational values in human ecological research, past and present. *Current Opinion in Environmental Sustainability* 35:54-60.
- Shipman, B. & Stojanovic T. (2007). Facts, Fictions, and Failures of Integrated Coastal Zone Management in Europe. *Coastal Management* 35: 375-398 DOI: 10.1080/08920750601169659
- Thompson, R. (2007). Cultural Models and Shoreline Social Conflict. *Coastal Management* 35:211-237, DOI: 10.1080/08920750601042294
- Trask, Haunani-Kay. (1991). Lovely Hula Lands: Corporate Tourism and the Prostitution of Hawaiian Culture. *Border Lines*, 23.
- Trask, Haunani-Kay. (1987). The Birth of the Modern Hawaiian Movement: Kalama Valley, O'ahu. *The Hawaiian Journal of History*, 21.
- Tuan, Y.F. (1979). Space and Place: Humanistic Perspective in *Philosophy in Geography*, Gale, S. & Olsson, G. (Eds.), 387-427. Boston, MA: D. Reidel Publishing Company

- “The U.S. Occupation.” (n.d.) Retrieved from <https://www.hawaiiankingdom.org/us-occupation.shtml> on 19 March 2019.
- U.S. Congress. (1897). *Joint Resolution to Provide for annexing the Hawaiian Islands to the United States (1898)*. U.S. Congress, Washington D.C., USA [online]. Retrieved from: <https://www.ourdocuments.gov/doc.php?flash=true&doc=54> on 19 March 2019.
- U.S. Congress. (1993). *Joint Resolution to Acknowledge the 100th Anniversary of the January 17, 1893 Overthrow of the Kingdom Of Hawaii*. U.S. Congress, Washington D.C., USA [online].
- Vance, S. L. & Wallsgrove, R. J. (2007). Casenote: More than a Line in the Sand: Defining the Shoreline in Hawai‘i After *Diamond v. State*. *University of Hawai‘i Law Review* 29(521).
- Van Dyke, Jon M. (2008). *Who Owns the Crown Lands of Hawai‘i?* University of Hawai‘i Press
- Volker, S., Heiler, A., Pollmann, T., Classen, T., Hornberg, C., & Kistemann, T. (2018). Do perceived walking distance to and use of urban blue spaces affect self-reported physical and mental health? *Urban Forestry & Urban Greening*, 29, 1-9
- Walsh, C. (2014). Rethinking the Spatiality of Spatial Planning: Methodological Territorialism and Metageographies. *European Planning Studies* 22(2): 306-322.
<http://dx.doi.org/10.1080/09654313.2012.741568>
- Willems-Braun, B. (1997). Buried Epistemologies: The Politics of Nature in (Post) Colonial British Columbia. *Annals of the Association of American Geographers*, 87(1), 3-31
- Williams, Liza Keānuenueokalani. (2015). *The Politics of Paradise: Tourism, Image and Cultural Production in Hawai‘i*. (Doctoral Dissertation).
- Williams, L. K. & Gonzalez, V. V. (2017). Indigeneity, sovereignty, sustainability and cultural tourism: hosts and hostages at ‘Iolani Palace, Hawai‘i. *Journal of Sustainable Tourism*, 25(5), 668-683.
- Whitson R. (2016). Painting Pictures of Ourselves: Researcher Subjectivity in the Practice of Feminist Reflexivity. *The Professional Geographer*. 10.1080/00330124.2016.1208510
- Wolch, J. R., Byrne, J., Newell, P. Urban green space, public health, and environmental justice: The challenge of making cities ‘just green enough.’ (2014). *Landscape and Urban Planning*, 125, 234-244.
<https://doi.org/10.1016/j.landurbplan.2014.01.017>

GLOSSARY OF HAWAIIAN TERMS*

‘Āina – Land, earth. Literally translates to “that which feeds.” More than material form alone, it nourishes the “social, cultural, and spiritual senses of the Hawaiian people” (Andrade 2008, p.3).

Ahupua‘a – Island divisions that run from forested upland areas down to include nearshore reefs. Ideally contain all resources needed for sustenance (Andrade 2008). Traditionally used in ancient systems of land management, however knowledge of ahupua‘a boundaries and characteristics is still prominent today.

Akua – God, goddess, spirit, idol.

Ali‘i – Chief, chiefess, ruler,

Ali‘i Nui - High chief, where Nui means big, great, grand, or important.

Aloha – Love, affection, mercy, sympathy.

Aloha ‘āina – Love for the land (Matsuoka & McGregor 1994).

‘Aumākua – Family/personal/ancestral gods. Deified ancestors who might assume shapes of various types of animals or inanimate objects.

Heiau - Temple or place of worship.

Kahakai – Transitional alluvial and coastal zones. Beach, seashore.

Kalo – Taro plant, one of the original ancestors of the Native Hawaiian and a cultural staple.

Kapu – Taboo, prohibition. A system that regulated behavior towards ‘āina based on seasonal observations and required strict social adherence (Kame‘eleihiwa 1992). Today commonly seen on private property markers signaling to tourist to “keep out.”

Konohiki – Headman of an ahupua‘a under the ali‘i. Acted as a land steward of sorts, controlled use of land and fishing grounds.

Kuleana – Right, privilege, responsibility. The Kuleana act of 1850 allowed maka‘āinana to file free claims for areas of land that they were living on and cultivating, as long as they could prove their claim was valid (Van Dyke 2008).

Kumolipo – A well-known Hawaiian creation chant.

Kūpuna – Elder. Also means “from the ancestors.”

Limu – A general name for different types of seaweed/ sea algae.

Māhele – To divide. The Māhele Act of 1848 divided the ancient joint system of land tenure held by mo‘i, ali‘i, konohiki and maka‘āinana to give each class a portion of land to own in fee simple (Van Dyke 2008).

Maka‘āinana – Those living and working on the ‘āina. Freeholders of land held in joint trust by those higher up in society.

Makai – In the direction of the ocean (kai).

Mālama – To care for, take heed of, preserve, or maintain.

Mana -Supernatural, divine, or miraculous power. Imbibes beings or objects with power/authority.

Mana‘o - Idea, belief, opinion, or intention.

Mauka – Forested upland areas, often used directionally (*i.e.: the shoreline should extend further up mauka*).

Mo‘i – King, sovereign, monarch, queen.

Moku o loko/moku – Large slices of land that span islands, running from the tops of volcanic mountains and forested uplands towards the ocean (Andrade 2008).

Mo‘okū‘auhau – Genealogy. Where mo‘o is succession or series and Kū‘auhau is genealogy or pedigree.

‘Ohana – Family, relative, kin group.

‘Ōpelu – A type of mackerel.

‘Opihi – Native limpets. Three different varieties are known.

Papa – Earth-mother, named in the Kumolipo as one of the progenitors of Native Hawaiians and of Hawaiian land.

Pono – Goodness, uprightness, correct or proper procedure.

Wākea – Sky-father named in the Kumolipo as one of the progenitors of Native Hawaiians and Hawaiian land.

Wao akua and **wao maukele** – Highly elevated regions of rainforest known as “the wilderness of the gods and or/ ghosts” (Mueller-Dombois 2007, p.26), little frequented by humans

*Unless otherwise noted, source for definitions is: Pukui, M. K. & Elbert, S. H. (2003). *Hawaiian Dictionary*. Ulukau, the Hawaiian Electronic Library, University of Hawai‘i Press. Retrieved from <http://ulukau.org/>